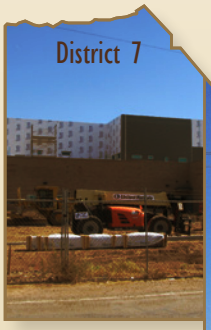
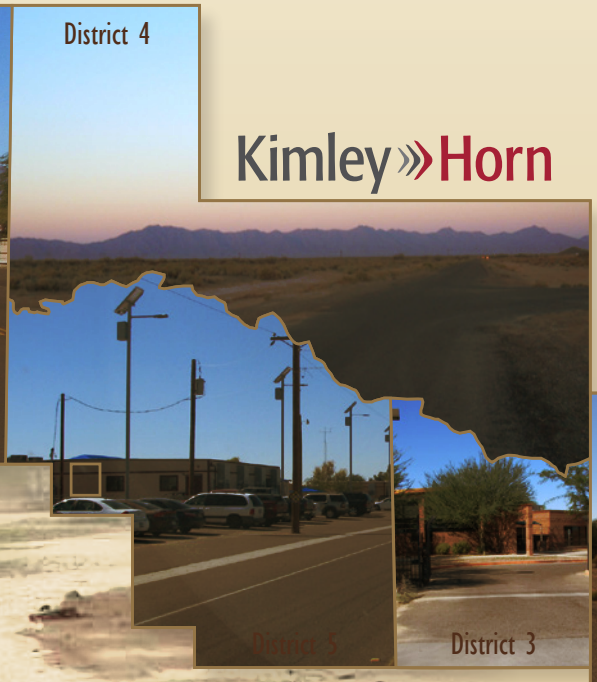
Final Report

Multimodal PEDESTRIAN SAFETY STUDY FOR THE Gila River Indian Community





Kimley»Horn

Task Assignment: MPD 008-14

LUPZ #15-11607

December 2014

GILA RIVER INDIAN COMMUNITY 1839 ARIZONA

Prepared for ADOT

Gila River Indian Community
Multimodal Pedestrian Safety Study

Final Report

Prepared by:

Kimley»Horn

Prepared for:
GILA RIVER INDIAN COMMUNITY

DECEMBER 2014

LUPZ #15-11607

ADOT Task Assignment MPD 008-14

GILA RIVER INDIAN COMMUNITY
SACATON, AZ 85147

RESOLUTION GR-294-14

A RESOLUTION APPROVING AND ADOPTING THE GILA RIVER INDIAN COMMUNITY MULTIMODAL PEDESTRIAN SAFEY STUDY

WHEREAS, the Gila River Indian Community (the Community) is a federally recognized tribe, and the Gila River Indian Community Council (the Community Council) is the governing body of the Community , and is authorized to approve proposals to apply for grants from external funding sources; and

WHEREAS, the Community Council is empowered by Article XV Section 1 (a) (9), of the Constitution and Bylaw of the Gila River Indian Community (approved March 17, 1960), to promote and protect the health, peace, morale, education, and general welfare of the Community and its members; and

WHEREAS, the Community Council is committed to ensuring safe infrastructure for the well being of the Community,

WHEREAS, the Department of Land Use Planning and Zoning (LUPZ) is charged with planning, zoning, surveying, ordinance enforcement, and management of Community lands; and,

WHEREAS, LUPZ through Resolution GR-44-13 made application to the Arizona Department of Transportation (ADOT) for a Planning Assistance for Rural Areas (PARA) Grant; and,

WHEREAS, ADOT in June 2013, through its Multimodal Planning Division awarded a PARA Grant to the Community being 100% funded at $225,000; and,

WHEREAS, the PARA Grant allowed ADOT, through Kimley Horn and Associates (Consultant) to conduct a planning study entitled "*Multimodal Pedestrian Safety Study*", for pedestrian safety improvements that included new sidewalks, school bus stops/turnouts, culvert restoration and transit within the populated residential area in Districts One through Seven; and,

WHEREAS, the Multimodal Pedestrian Safety Study supports and builds upon the Community's adopted 2011 Seven Districts Master Plans and 2011 Transportation Study.

WHEREAS, the Community, through the Department of Land Use Planning and Zoning, the Arizona Department of Transportation and consultant Kimley Horn and Associates, prepared and completed the Gila River Indian Community, Multimodal Pedestrian Safety Study attached hereon to and incorporated herein; and,

WHEREAS, the Natural Resources Standing Committee has reviewed the Multimodal Pedestrian Safety Study and forwards to the Community Council for approval.

NOW, THEREFORE, BE IT RESOLVED, that the Community Council hereby approves and adopts the Gila River Indian Community, Multimodal Pedestrian Safety Study.

BE IT FURTHER RESOLVED, that the Multimodal Pedestrian Safety Study's intent is for the use of all Community Districts and Departments in implementing future grant funding on recommended projects as described therein.

BE IT FURTHER RESOLVED, that LUPZ provide administrative guidance to the interpretation and usage of the Multimodal Pedestrian Safety Study.

BE IT FINALLY RESOLVED, that the Governor, or in the Governor's absence the Lieutenant Governor, is hereby authorized and directed to approve and execute all documents necessary to effectuate the intent of this Resolution.

CERTIFICATION

Pursuant to authority contained in Article XV, Section **1, (a) (5), (7), (9), (18),** and Section **4** of the amended Constitution and Bylaws of the Gila River Indian Community, ratified by the tribe January 22, 1960, and approved by the Secretary of the Interior on March 17, 1960, the foregoing resolution was adopted on the **3rd** of **December 2014,** at a regular Community Council meeting held in **District 3, Sacaton, Arizona** at which a quorum of **15** Members were present by a vote of: **15** FOR; **0** OPPOSE; **0** ABSTAIN; **2** ABSENT; **0** VACANCIES.

GILA RIVER INDIAN COMMUNITY

GOVERNOR

ATTEST:

COMMUNITY COUNCIL SECRETARY

GILA RIVER INDIAN COMMUNITY
1939
ARIZONA

This report has been funded in part through financial assistance from the Federal Highway Administration, U.S. Department of Transportation. The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data, and for the use or adaptation of previously published material, presented herein. The contents do not necessarily reflect the official views or policies of the Arizona Department of Transportation or the Federal Highway Administration, U.S. Department of Transportation. This report does not constitute a standard, specification, or regulation. Trade or manufacturers' names that may appear herein are cited only because they are considered essential to the objectives of the report. The U.S. government and the State of Arizona do not endorse products or manufacturers.

Table of Contents

Figures

Tables

Introduction

PROJECT BACKGROUND AND STUDY AREA

This study has been administered in partnership with the Gila River Indian Community (Community) and the Arizona Department of Transportation Multimodal Planning Division (ADOT) through the Planning Assistance for Rural Areas (PARA) program. The PARA program is funded through financial assistance from the Federal Highway Administration under the State Planning and Research Program.

The purpose of this study has been to evaluate pedestrian safety needs and pedestrian infrastructure needs on the Community and identify a recommended program of multimodal enhancements to address the identified needs. Projects include sidewalks/shared-use paths, bus stops/turnouts, culvert replacement and new culverts, and other infrastructure to support the Community's long-term goals. The study team has developed planning-level cost estimates and potential funding sources for recommended improvements.

The study area consists of developed areas within the seven Districts that make up the Community. The study areas are shown in **Figure 0-1.**

OVERVIEW OF THE GILA RIVER INDIAN COMMUNITY

The Gila River Indian Community traces its roots to the Hohokam, prehistoric Indians who lived and farmed along the Gila River Basin centuries ago. Composed of two members of tribes, the Pima and Maricopas, the Gila River Indian Community is located in south-central Arizona.

The 372,000 acre reservation was established by an act of Congress in 1859 and formally established by Constitution in 1939. Tribal administrative offices and departments are located in Sacaton.

The Gila River Indian Community is steadily increasing and diversifying its industrial, agricultural, retail and recreational economic base. The Community currently operates three industrial parks that are home to several local and national companies.

Gaming also continues to be a positive economic development activity for the Community. Wild Horse Pass, Lone Butte, and Vee Quiva are the three facilities that comprise the Gila River Casinos. Adding to the entertainment experience available to visitors, the Community is currently developing a substantial golf and resort development project that will feature two world class 18-hole golf courses and a 500-room hotel resort complex.

In addition to emphasizing industry, business and recreational opportunities, the Community continues to depend upon agriculture to grow its economy. Community farms support a variety of crops such as corn, cotton, wheat, millet, alfalfa, barley, melons, pistachios, olives, citrus, and vegetables.

Gila River Indian Community Demographics and Socioeconomic Overview

This section provides a summary of Community demographic characteristics. The summary includes a discussion of population and growth, age distribution, and information on how Community residents commute to work.

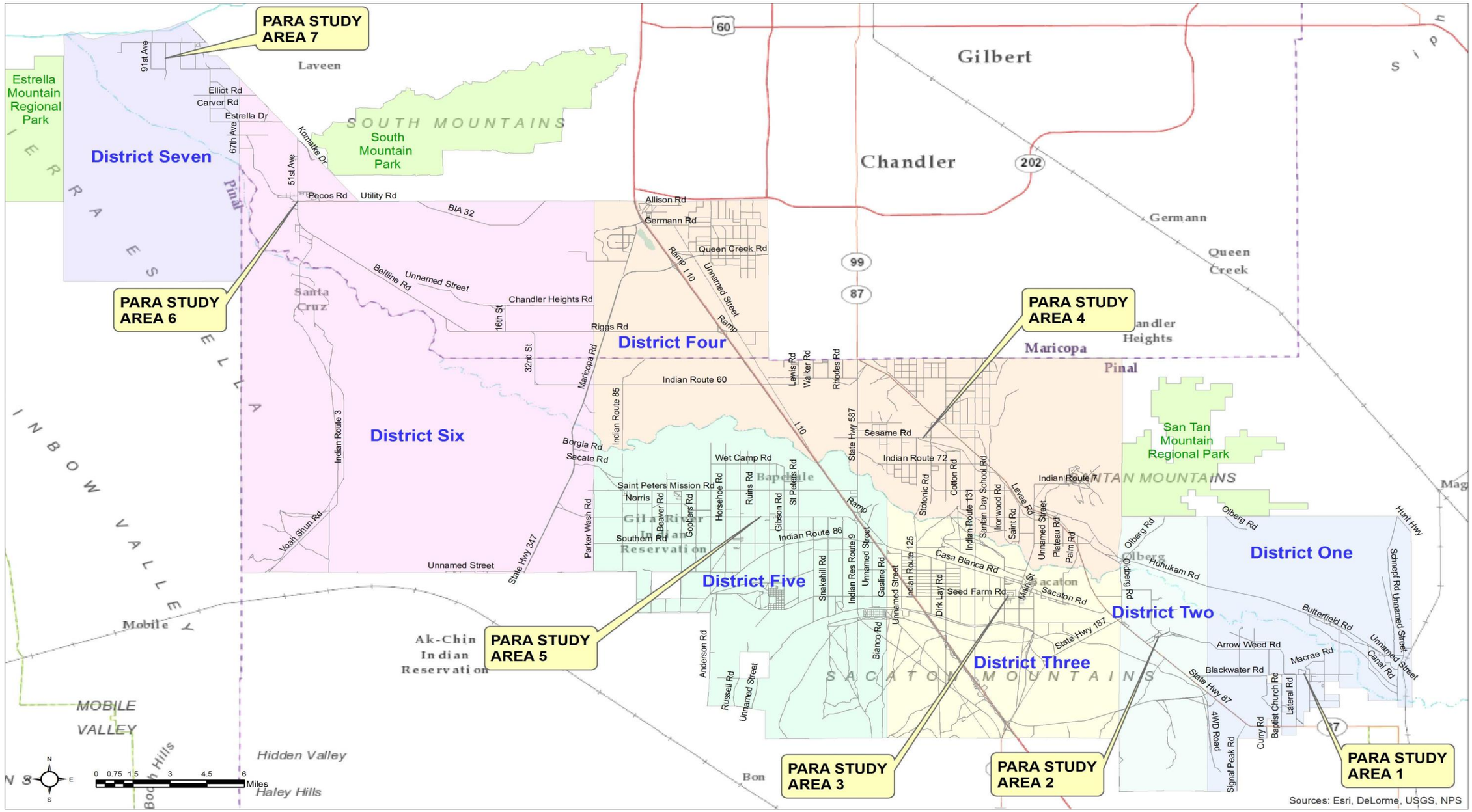


Figure 0-1: Study Area Map

Population and Growth

The 2010 population for the Gila River Indian Community Reservation was 13,245 persons, according to data from the United States (U.S.) Census. Population growth between 2000 and 2010 has increased at a rate of approximately 1.6 percent per year. The state as a whole grew approximately 2.2 percent per year between 2000 and 2010. These data are shown in **Table 0-1**.

Table 0-1: Population Growth

YEAR	GILA RIVER INDIAN COMMUNITY POPULATION	STATE OF ARIZONA POPULATION
2000	11,257	5,130,632
2010	13,245	6,392,017
Annual Average Growth Rate	1.64%	2.22%

Source: 2000 and 2010 United States Census

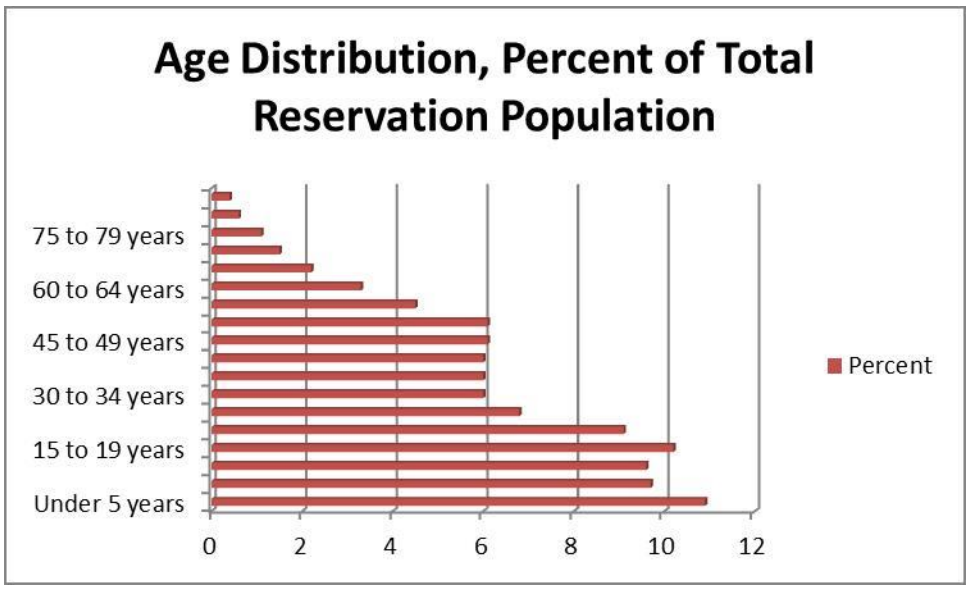
Age Distribution

The age distribution within the Gila River Indian Community Reservation for the 2010 U.S. Census is summarized in **Table 0-2.** The median age is 25.3 years. This table is followed by a graph showing the percent of population in each age group.

Table 0-2: 2010 Census Age Distribution

AGE RANGE	NUMBER OF PERSONS	PERCENT OF POPULATION
Under 5 years	1,280	10.9
5 to 9 years	1,139	9.7
10 to 14 years	1,129	9.6
15 to 19 years	1,199	10.2
20 to 24 years	1,064	9.1
25 to 29 years	792	6.8
30 to 34 years	701	6
35 to 39 years	703	6
40 to 44 years	700	6
45 to 49 years	709	6.1
50 to 54 years	711	6.1
55 to 59 years	528	4.5
60 to 64 years	382	3.3
65 to 69 years	260	2.2
70 to 74 years	175	1.5
75 to 79 years	125	1.1
80 to 84 years	66	0.6
85 years and over	49	0.4

Source: 2010 United States Census, Table DP-1



Commuting To Work Characteristics

Approximately 5.4% of residents walk to work

Table 0-3 provides information on commuting characteristics from the U. S. Census American Community Survey. Within the Gila River Indian Community, the majority of workers drove to work, however, a significant percentage of workers carpooled (19%). Approximately 5.4% of survey respondents walked to work, which is relatively large, considering the Gila River Indian Community covers an extensive area, and the distance between destinations can be large.

Table 0-3: Commuting to Work Characteristics on the Gila River Indian Community

MEANS TO WORK	POPULATION	PERCENT (%)
Workers 16 Years or Over	3,035	100
Drove Alone	2108	69.7
Carpooled	574	19
Used Public Transportation (excluding taxi)	92	3
Walked	163	5.4
Other Means	65	2.1
Worked at Home	23	0.8

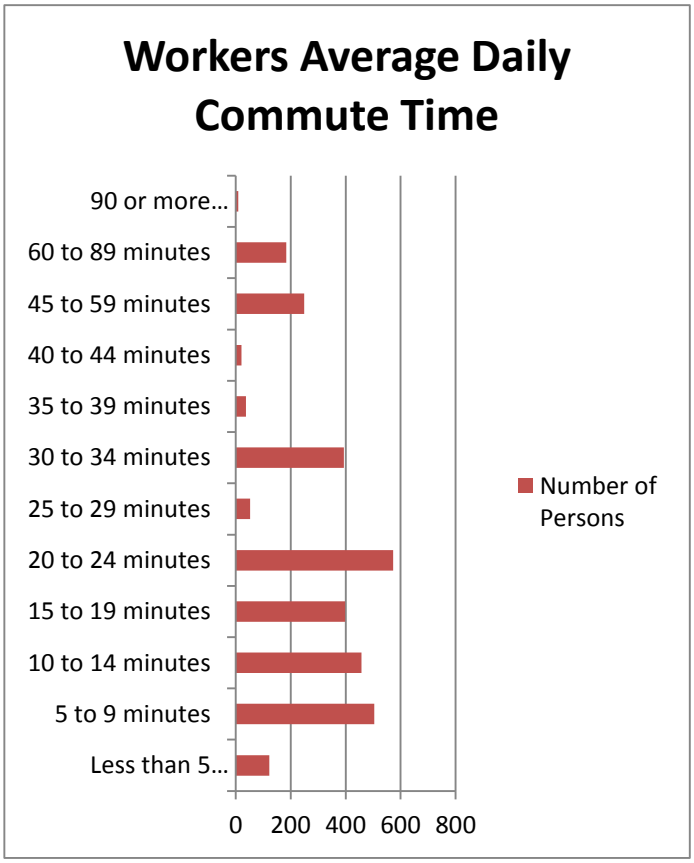
Source: U.S. Census Bureau, 2006-2010 American Community Survey, Selected Economic Characteristics (DP03)

Travel time to work, shown in **Table 0-4,** indicates that most workers have an average daily commute time of less than 20 minutes.

Table 0-4: Worker Commute Time

TRAVEL TIME CATEGORY	NUMBER OF WORKERS
Less than 5 minutes	122
5 to 9 minutes	504
10 to 14 minutes	457
15 to 19 minutes	398
20 to 24 minutes	573
25 to 29 minutes	53
30 to 34 minutes	393
35 to 39 minutes	38
40 to 44 minutes	21
45 to 59 minutes	249
60 to 89 minutes	184
90 or more minutes	10

Source: U.S. Census Bureau, 2008-2012 American Community Survey, Table B08303



STUDY OBJECTIVES

Key objectives of the improvements recommended in this study are:

- Provide a safer environment for walkers and bicyclists.
- Expand travel options by providing more non-motorized infrastructure options.
- Provide drainage improvements in areas with high pedestrian activity to make it easier for persons to walk safely.
- Provide improved safety through the provision of street lighting.

PROJECT OVERVIEW AND USE OF THE PLAN

This study provides a **vision** for pedestrian safety improvements in the developed areas of each of the seven Districts. The recommendations can be used by the seven Districts, as well as other Departments, as justification to apply for grant funding for pedestrian–related projects, and in planning capital or road improvements projects in the future. This report will be available from the Gila River Indian Community Department of Land Use Planning and Zoning and they will be a continuing resource for assistance in utilizing the findings of this study.

Each District study area is discussed in a separate chapter (Chapters 1 through 7) of this final report. These chapters are organized similarly and contain:

- District study area and overview
- Existing transportation conditions relating to pedestrians and bicyclists
- Drainage and environmental conditions
- Summary of pedestrian safety needs
- Recommended improvements to meet identified needs
- Improvement project prioritization

An overview of the main aspects of Chapters 1 through 7 is described below. Following the District – specific chapters, Chapter 8 describes a potential route for a multiuse trail using an abandoned Union Pacific rail line spanning multiple District boundaries. Chapter 9 summarizes all recommended improvements for short-, mid- and long range time periods. Chapter 10 provides a listing of potential funding sources. Chapter 11 discusses currently programmed projects on study area roads. Chapter 12 provides recommendations for potential future updates to the functional classification of roads and to the Tribal Transportation Inventory, which is a database of information relating to the tribal road system and is used in part as a basis for allocating federal funding. Chapter 13 discusses public involvement for the project, and describes the Project Management Team and the Technical Advisory Committee that was formed for the study.

District Study Area and Overview -This section provides a brief overview of each District study area and identifies:

- Study area roads;
- Pedestrian and bicycle goals and objectives from the District Master Plan;
- Existing land uses and activity centers;
- Future planned land uses and activity centers; and
- Population densities in the study area.

Existing Transportation Conditions Relating to Pedestrians and Bicyclists - The analysis of transportation conditions has been used to identify pedestrian safety needs. Key information analyzed for each District study area is summarized below.

- **Existing Street System** - Study area roads are described in terms of number of lanes and traffic volume data. Traffic volume data has been obtained from the 2014 Tribal Transportation Inventory, which is updated by the Gila River Indian Community and submitted to the Bureau of Indian Affairs in March of each year. Typically average daily traffic volume information was available for 2003. A 2014 estimate has been developed by assuming a two percent per year annual average growth rate. On some roadways, particularly near schools, more recent average daily traffic volume information was available and has been reported. Traffic control at key intersections on study area roads is described.
- **Pedestrian, Bicycle, and Traffic Count Data** - Pedestrian, bicycle, and traffic count data were collected at specific locations in each District for a two hour period. These data have been used to identify locations that need pedestrian improvements because of higher levels of pedestrian/vehicle conflicts. It should be noted that when a pedestrian count is referred to as "low" this is in reference to Arizona Department of Transportation Policy 910 on Pedestrian Crosswalks. Pedestrian volumes between one and ten pedestrians in an hour do not qualify a location for a crosswalk at a midblock or unsignalized location, so are considered low in this context.
- **Level of Service -** Roadway traffic operations are defined and categorized by the amount of delay experienced by an average driver. The operations are categorized by a grading system called Level of Service (LOS), which has a letter designation ranging from A (no delay) to F (severe congestion). For a planning level analysis, the LOS is determined based on the ratio of traffic volume on the roadway to the capacity of the roadway. Daily volume thresholds for the LOS letter designations have been developed for various types of study area roadways and are shown in **Table 0-1.** Rural local or residential roads typically carry low volumes and are assumed to be operating in the A to C range.

Table 0-5: Level of Service Daily Volume Thresholds

FUNCTIONAL CLASSIFICATION	UNDER CAPACITY (LOS A–C)	NEAR CAPACITY (LOS D)	AT CAPACITY (LOS E)	OVER CAPACITY (LOS F)
Rural Minor Arterial	< 9,800	9,800 – 11,700	11,700 – 13,000	> 13,000
Rural Minor Collector	< 5,500	5,500 – 6,700	6,700 – 7,400	> 7,400

Source: Highway Capacity Manual (2010)

- **Access Management** - The project team has reviewed the number of driveway openings and intersections on each of the study area roads to determine whether there may be an opportunity to consolidate driveways, provide pedestrian islands at intersections, or other means to reduce pedestrian crossing conflicts, which will improve safety.
- **Road Widths and Right-of-Way Widths** - Road widths and right-of-way widths are documented, where available, for each of the study area roads for use in developing improvements projects.

- **Functional Classification -** Functional classification is the grouping of highways, roads, and streets by the character of the service they provide. One functional class differs from another according to the degree of access and mobility. Collector and local streets provide land access, carry local traffic to the neighborhoods, and distribute traffic to the arterials. Arterial streets provide mobility over long distances with minimal access to adjoining properties. This report summarizes the roadway functional classifications included in the Tribal Transportation Inventory for each study area road. Presently, no direct correlation exists between BIA functional classifications and Federal Highway Administration (FHWA) functional classifications, which are used to determine if a road is eligible for federal highway funding through other transportation agencies. This report references BIA functional classifications, unless otherwise noted.
- **Pavement Conditions -** Pavement conditions, based on visual inspection and the roadbed condition indicated in the Tribal Transportation Inventory are reported for each study area road. Since residents in the Community typically walk on the road to avoid walking in the dirt, a poor roadbed condition can potentially cause problems for walkers.
- **Existing Planned Road Improvement Projects -** Roadway improvement projects that are contained in the Gila River Indian Community Transportation Study (2011) or the Tribal Transportation Improvement Program were reported to determine if there may be a potential for including additional pedestrian safety improvements.
- **Existing Sidewalks and Crosswalks** - Existing sidewalks and crosswalks are shown to determine whether a more continuous system could be developed through the addition of sidewalk segments.
- **Existing Street Lighting** - Existing street lighting is described for the study area roads. This information has been used in developing a plan that will enhance the existing street lighting, and for identifying areas that could potentially need street lighting.
- **Crash Data** - Crash data has been obtained from ADOT, which contains both ADOT crash data and Community crash data over a five period from January 1, 2009 to February 4th, 2014 in order to review pedestrian crash history. Discussions with Gila River Indian Community Police Department staff indicated that they submit their crash data to ADOT on an ongoing basis, and thus their data is part of the ADOT database. The data has been reviewed to determine the location and causes of pedestrian crashes, as well as contributing causes of vehicular crashes that might improve conditions.
- **Transit and School Bus Routes** - The project team contacted area school transportation directors and other transportation providers to determine if there is locations where it is difficult for students to wait for the bus, or other areas where bus stops might be desirable. Information on Valley Metro bus routes and the future Tribal Transit System which will be implemented in Districts 3, 6 and 7 is presented.

Drainage and Environmental Conditions – This section provides an overview of drainage and environmental conditions in order to determine constraints that might need to be addressed as part of recommended improvements. Flooding, ponding, and sheet flows are a natural occurrence within each District during every rain storm and provide a major problem for the walking community, especially for those who do not have transportation, particularly the elderly, handicapped, and children. The Gila River Indian Community is currently working on a Floodplain and Drainage Ordinance that will be completed in 2015. The Ordinance will ensure that Community development will take into account

flood hazards, to the extent that they are known, in all official actions relating to land management and use.

Summary of Pedestrian Safety Needs - This section provides an overview of pedestrian safety needs based on public and stakeholder input and analysis of transportation conditions.

Recommended Improvements to Meet Identified Needs - Recommended improvement projects are summarized in tabular form and on summary sheets by road. General information about design standards and the types of improvement projects recommended in this study are provided at the end of this section.

Improvement Project Prioritization - The transportation improvement projects recommended will address critical pedestrian and bicycle safety needs. These projects are prioritized into the following categories:

- **Short-term improvements** are those that can be implemented fairly quickly, in the next two to five years, and with generally low cost. Improvement projects that may have the potential to be constructed with a previously programmed improvement are also included in this time frame.
- **Mid-term improvements** are more complex and may require more planning time or may need to be submitted to a funding program. The time frame for these projects is generally 5 to 10 years.
- **Long-term projects** are the most complex, may involve multiple property owners and obtaining easements or access, and frequently cost the most. These projects generally are in the 10 to 20 year time frame.

Criteria for prioritizing improvements included the following elements:

- Sidewalk availability
- Crossing opportunities
- Number of pedestrian crashes in five year period analyzed for this study
- Traffic speeds
- Traffic volumes
- Project cost (2014 dollars)
- Improvement addresses recommendations from the District Master Plan.
- Improvement creates a more comfortable, safe environment for pedestrians or bicyclists.
- Improvement provides better drainage and / or reduces flooding for walkers.
- Improvement supports safety in walking to school, biking, or taking the school bus.
- Improvement increases health and wellness by making it easier to walk or bike.
- Improvement connects activity centers.
- Improvement provides better multimodal connections.
- Improvement complexity of design– for example, is new ROW required, or environmental issues to be addressed.
- Improvement coordinates with a planned improvement in the Tribal Transportation Improvement Program (TTIP) or Long Range Plan.

Using these criteria as guidance, points were assigned in each of these categories. The maximum available points that could be assigned were 50 points. In general, project scoring ranged from 20 points to 35 points. Improvements were then categorized as follows:

- Short-term projects: 30-35 points

- Mid-term projects: 25-29 points
- Long-term projects: 20-24 points

It should be emphasized that as funding becomes available, or implementation opportunities arise, prioritization can change over time.

Improvement costs have been estimated using 2014 dollars. A review of the National Highway Construction Cost Index[1] indicated that over a ten year period from March 2003 to March 2013, the highway construction cost index rose from 1 to 1.1002, or approximately ten percent in ten years. Therefore, depending on the specific implementation year, the estimated construction costs can be adjusted up approximately one percent per year.

DESIGN STANDARDS AND TYPES OF FACILITIES

The development of bicycle and pedestrian facilities has been guided by design standards of the Bureau of Indian Affairs and American Association of State Highway and Transportation Officials (AASHTO) guidance such as the Guide to the Development of Bicycle Facilities and A Policy on Geometric Design of Streets and Highways. The Federal Highway Administration Manual of Uniform Traffic Control Devices (MUTCD) and Arizona Department of Transportation Traffic Safety for School Areas Guidelines have also used as references. **It should be noted that this is a planning study and as projects are implemented, specifications will be determined by the implementing agency.**

This study is a plan to provide a safer pedestrian environment. As projects are implemented, specifications will be determined by the implementing agency

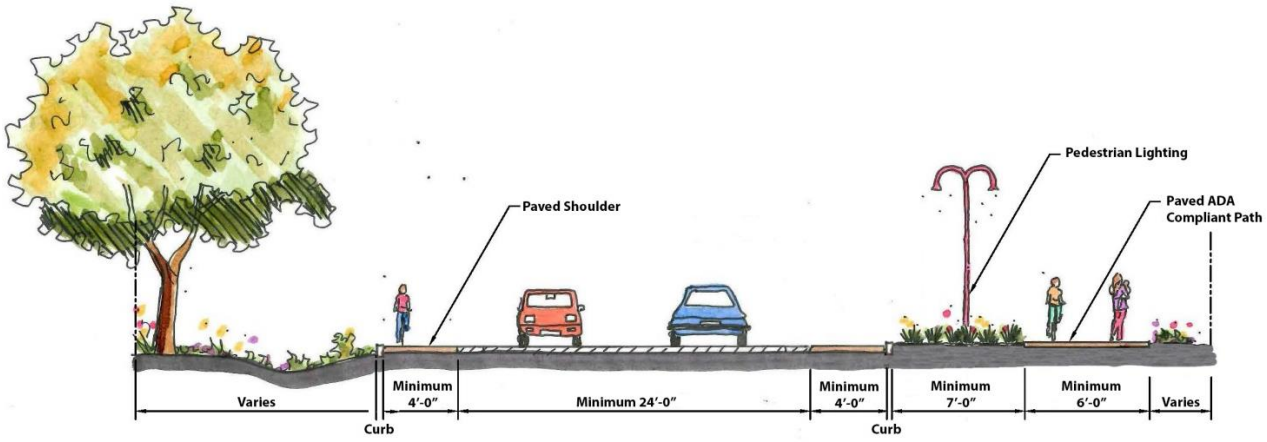
During the development of projects, a number of typical cross sections have been developed to best accommodate the unique road conditions on various roads, considering available right-of-way, level of pedestrian usage, drainage facilities, functional classification, average daily traffic volumes, and other factors.

Sidewalks and paths are termed “ADA compliant” which means the path or pedestrian facility has a surface that is “firm and stable”, have requirements for the maximum allowable slope and cross slope, and are of a minimum width. These typical sections are described as follows.

SECTION 1 – CURBED SECTION WITH PAVED ADA COMPLIANT PATH AND LANDSCAPED BUFFER ON ONE SIDE OF STREET

This section includes a minimum six-foot wide sidewalk or path separated from vehicular traffic by a minimum seven-foot wide landscaped buffer, a 6-inch curb and a minimum four-foot wide paved shoulder. In conditions with ample right-of-way, the landscaped buffer area should be increased to provide additional separation from vehicles and to provide a space for drainage conveyance. When possible, the pathway should be 12-feet wide to provide a safe place for a broad range of user groups. Section 1 generally maintains a rural character, although it could provide for street/pedestrian lighting depending on the level of need. Specifics, such as location of curb cuts, would be determined during design.

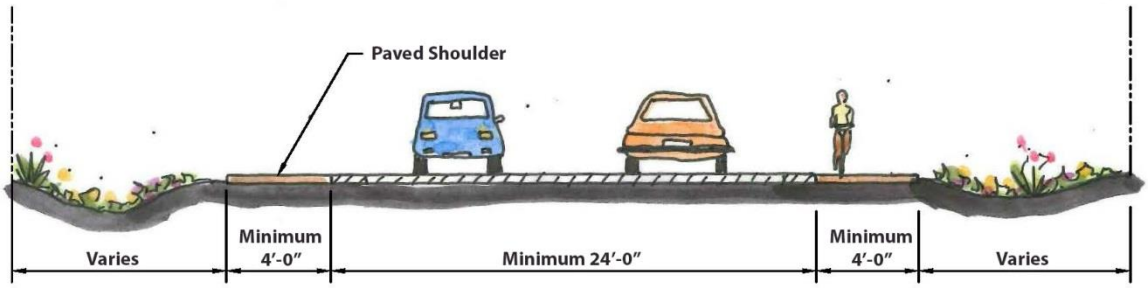
[1] National Highway Construction Cost Index, http://www.fhwa.dot.gov/policyinformation/nhcci/pt1.cfm, reference 8/13/2014.



SECTION 1

SECTION 2 – ADDITION OF PAVED SHOULDERS

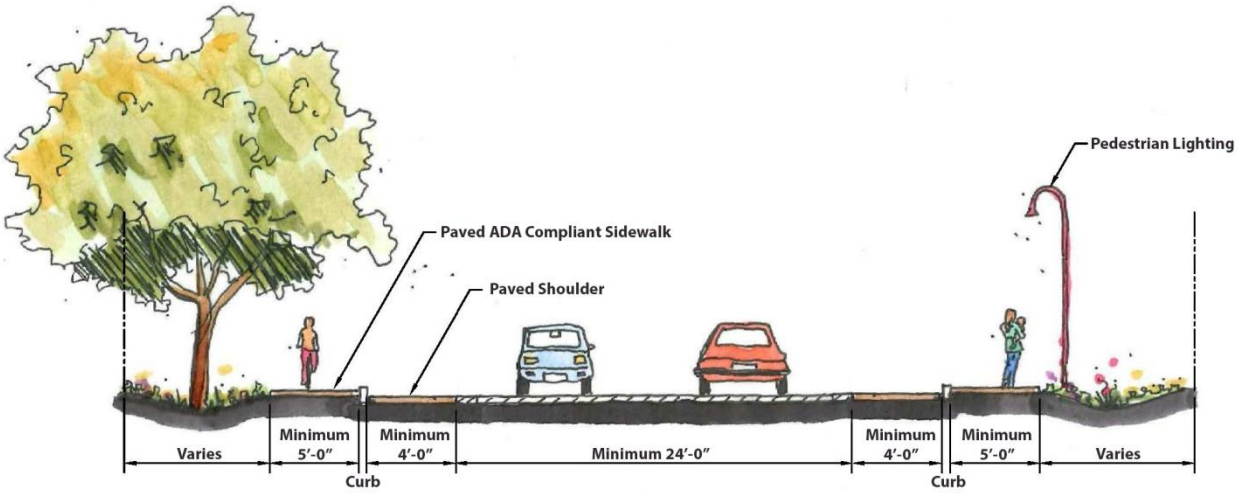
Section 2 is used in rural areas where there is limited right-of-way and where there is currently no area for pedestrians to walk except for the roadbed or the undeveloped roadside. Minimum four-foot wide shoulders on either side of the road provide an area where people can bicycle or walk outside of the travel lane.



Section 2

SECTION 3 – CURBED SECTION WITH PAVED ADA COMPLIANT SIDEWALKS (EITHER ONE OR BOTH SIDES OF ROAD) – LOCAL ROADS

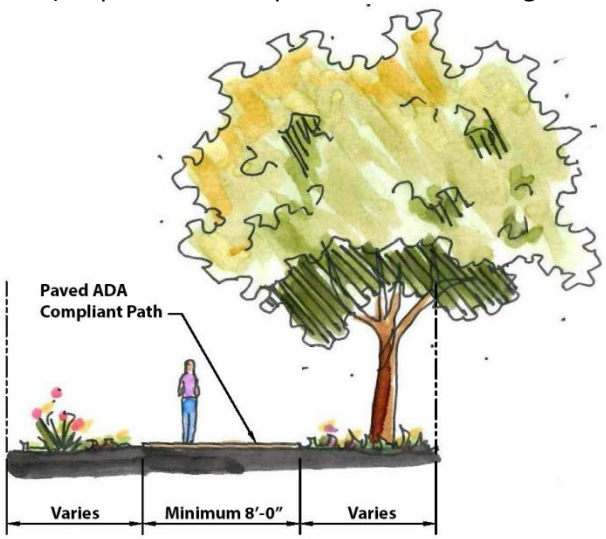
This section includes a minimum five-foot wide sidewalk or path on either one or both sides of the road with a 6-inch curb to separate users from vehicular traffic. A minimum four-foot wide shoulder is recommended for roads that do not currently have a paved shoulder. This section is typically used in areas where there are right-of-way or drainage constraints such as swales on either side of the street. Pedestrian/street lighting can also be included to increase safety, particularly in the more urban areas. Specifics, such as location of curb cuts, would be determined during design.



SECTION 3

SECTION 4 – TRAIL SECTION

This section is recommended in areas where a more formalized trail is desired separate from the roadway network. The section includes a minimum 8-foot wide multi-use path with 12 feet being the preferred width (if space allows) to provide a safe place for a broad range of user groups.

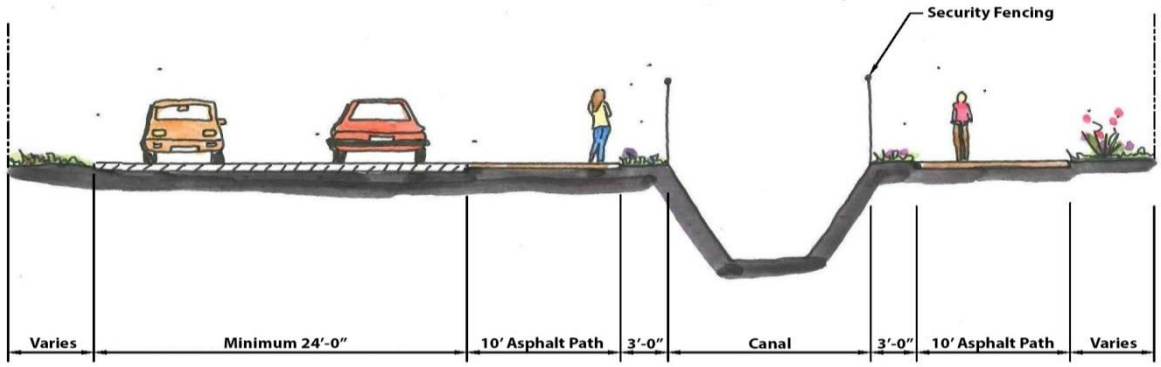


SECTION 4

SECTION 5 – CANAL PATHWAY

Section 5 is specifically tailored to areas adjacent to the existing canal along Levee Roadway in District 4. It should be noted that close coordination will be required with the Pima-Maricopa Irrigation District, the Gila River Irrigation Improvement District, and the San Carlos Irrigation Project prior to implementing a pathway system near the canal due to safety concerns. Where possible, Levee Roadway should be 24-feet wide with an additional 10-foot wide asphalt path dedicated for pedestrian/bicycle use. A minimum 10-foot wide asphalt path should also be included on the opposite side of the canal to provide continuous pedestrian access in the event that there is insufficient room

for a path adjacent to the roadway. A minimum three-foot wide landscape buffer and security fencing provides separation between the users and the canal. **The Gila River Indian Community Department of Transportation does not support infrastructure development along the canal.**



SECTION 5

PATH MATERIALS

The selection of a surface material for the recommended paths depends on the anticipated type and intensity of use, aesthetic considerations, maintenance, cost and availability. The three basic surface options for the paths are:

Stabilized Decomposed Granite

Stabilized decomposed granite paths provide the most natural appearance and are the least costly option in terms of up-front costs. However, their success largely depends on the quality of the installation and the commitment to long-term maintenance. When installed correctly, this option is considered ADA accessible. Frequent maintenance and upkeep are required to maintain accessibility and to keep the path in good condition. Maintenance includes removing organic debris and patching areas of wear and tear by adding new stabilized aggregate and compacting. Traffic must be kept off area for 12 to 48 hours after repair has been completed. **It should be noted that the Gila River Indian Community Department of Transportation does not support the use of stabilized decomposed granite for paths adjacent to the road. However, they can be acceptable for paths that are separated from the road right-of-way.**

Asphalt

Asphalt pavement offers smooth, joint-free travel and is typically used on shared-use paths designed to accommodate pedestrians, slow-speed bicyclists (e.g., children riding to and from school) and wheeled devices such as strollers. Asphalt is considered a softer surface than concrete, which is preferable to walkers and joggers. Asphalt paths also tend to blend in with the natural environment and can be colored to preserve the natural setting. The use of asphalt is generally more cost-effective than concrete in terms of material costs and construction time, although periodic maintenance and proper installation is required to achieve a 20 year design life. Factors to consider include proper drainage and sub-grade compaction as well as adequate pavement thickness and compaction. Maintenance may include sweeping the path of debris, removing encroaching vegetation and periodically sealing the surface. Caution should be used on the application of certain sealants to avoid the introduction of a very coarse or slick surface material.

Concrete

Concrete generally offers the least amount of maintenance and the highest durability with a 30+ year design life. It also has the opportunity to offer a consistent overall appearance by tying in to the existing sidewalk network. Concrete can be colored and textured to provide greater aesthetic appeal. However, construction costs are significantly higher than either of the previous two surfacing options. Also, path users typically prefer softer, more flexible surfacing than what is offered by concrete. If maintenance is required it can be very costly whether it be slab replacement or joint grinding.

OTHER IMPROVEMENTS

Solar Street Lights

Street lights are recommended in many areas to improve pedestrian safety. Because of the many solar street lighting installations in the Community, solar lights were assumed for this project, although other types of street lights are also feasible. Recent advancements in solar lighting technology have developed lights that are optimized for aesthetics while offering reduced maintenance costs. In some cases, the solar collector can be adhered directly to the surface of the pole to maximize the aesthetic value of the fixture. This also enables the solar collector to 'self-clean' due to vertical orientation and provides optimum wind-loading due to the elimination of the flat solar panel on top of the pole. Components are integrated inside a secured compartment within the base of the pole to reduce installation and maintenance costs. Solar collectors are designed to be vandal resistant due to bypass diodes and durable high light-transmissive polymer covering.

Some fixtures offer computerized energy management systems that eliminate the risk of premature battery failure. Motion sensors are also available that override

dimming features when activity is detected. Fixtures are considered 'Dark Sky Friendly' and feature a full cutoff.

High Visibility Crosswalks

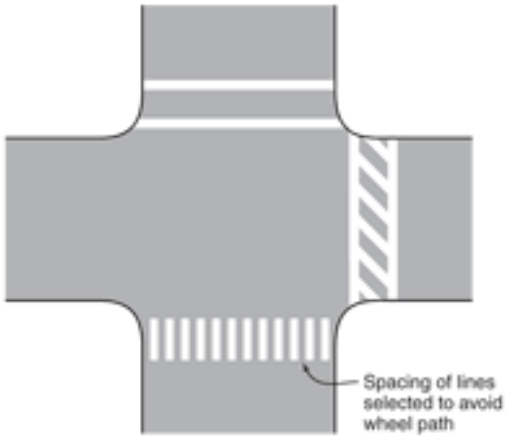
Marked crosswalks guide pedestrians and alert drivers to a crossing location, so it is important that both drivers and pedestrians clearly see the crossings. Crosswalks can be marked in paint or a longer lasting plastic or epoxy material embedded with reflective glass beads. Although more expensive, longer-lasting, high-visibility crosswalk marking materials are a better value over time as they require less maintenance. The minimum crosswalk width is six feet wide but should be wider at crossings with high numbers of pedestrians. It should be noted that the use of crosswalks at mid-block locations are generally discouraged by the Gila River Indian Community Department of Transportation and they must meet warrants for use and have Bureau of Indian Affairs concurrence if implemented.

High-visibility crosswalk with a ladder design
Source: Safe Routes to School Guide, saferoutes.org

Standard Crosswalks

Crosswalk markings provide guidance by defining and delineating paths in areas where traffic stops. Crosswalk markings consist of solid white lines not less than six inches, or greater than 24 inches in width.

Figure 3B-19. Examples of Crosswalk Markings



Source: Manual of Uniform Traffic Control Devices

Gateway Signage

Signage at the entrance to a residential area or an activity center of the Community introduces drivers to the Community and cues them to slow down. An example of gateway signage is located on Baseline Road, at the Gila River Indian Community boundary. Gateway signage can also include public art, or incorporate natural materials of the area.

Example of a gateway sign

Radar Speed Monitors

Radar speed monitors can combine a display of the regulated speed limit and a dynamic "your speed" display based on approaching vehicle, or can simply display the drivers speed (when it is over the speed limits, typically the display flashes). The signs can be portable or be pole mounted and can also be solar powered. They can also incorporate beacon features.

Example of radar speed monitor

Bus Pads and Shelters

There are many options for the design of bus shelters, but for planning purposes a shaded bus shelter with seating was assumed. Bus shelters can be designed to incorporate public art, as well as amenities such as schedules, advertising, Community notices, lighting, etc. Bus shelters can be used for school bus stops or for transit stops.

Example of a bus shelter

1 District 1

1.1 DISTRICT 1 STUDY AREA AND OVERVIEW

District 1 is the easternmost boundary of the Community. It is approximately 50 square miles and has a population of approximately 1,000 residents. The District is named Shuckma Hudag or Oos Keh, which translates to Blackwater and Stick Stand. District 1 is in close proximity to the town of Florence to the east, the City of Coolidge to the south, and the San Tan Mountains to the north. The Gila River bisects District 1.

The streets that are the focus areas for the pedestrian safety study in District 1 include the following Bureau of Indian Affairs (BIA) routes:

- Blackwater School Road (Rte 104)
- Squawbush Road (Rte 106)
- Toki Road (Rte 177)
- Firestation Road (Rte 270)

The street system is shown in **Figure 1-1.**

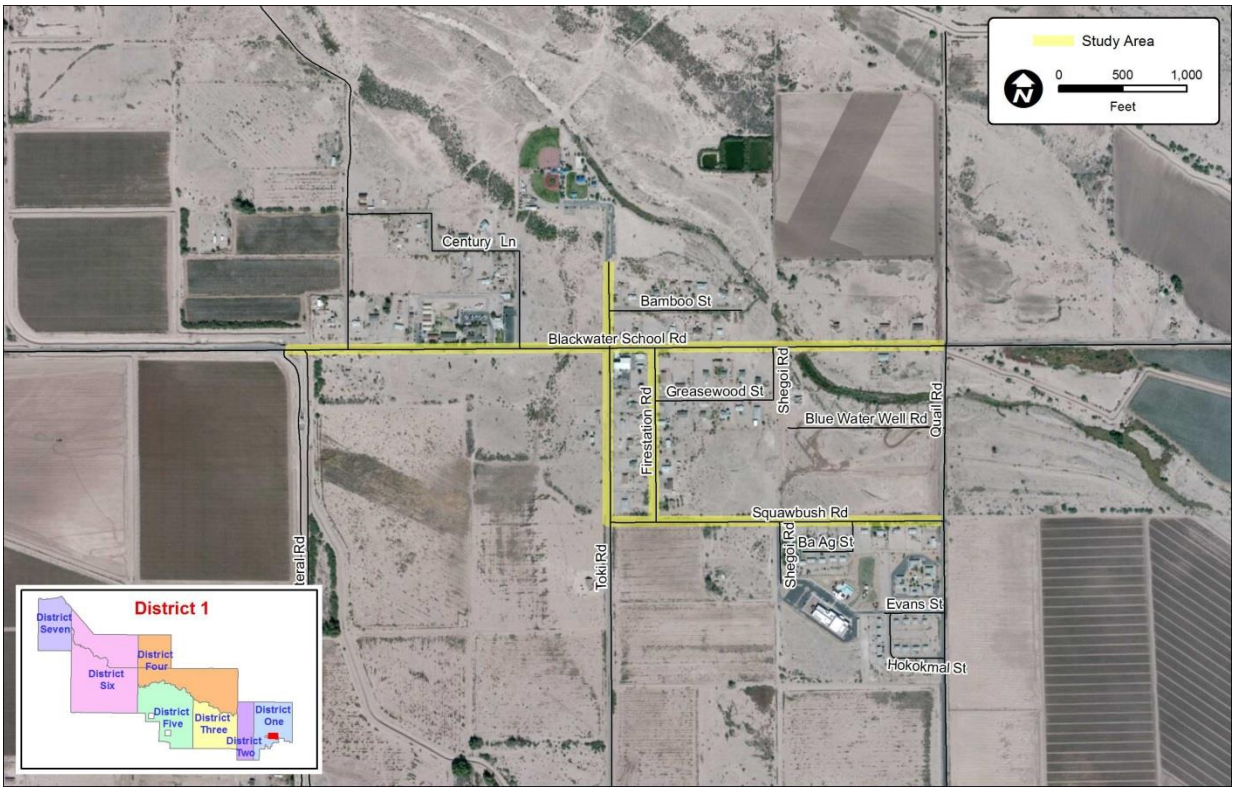


Figure 1-1: District 1 Study Area Roads

1.1.1 DISTRICT 1 MASTER PLAN

The District 1 Master Plan has been used to help guide the development of pedestrian safety projects. Key objectives relating to the provision of safe places for pedestrians and bicyclists include the following:

- Maintain a network of sidewalks and/or pathways that connect public facilities.
- Develop off-road trails that connect public facilities in the Blackwater village core to residential areas to the west.
- Develop a trail north from the Blackwater village core to the proposed Reservation-wide trail.
- Promote walking and pedestrian safety by providing low-level lighting along sidewalks where appropriate.
- Utilize striping to designate bike lanes on existing roadways, as appropriate.
- Provide covered school bus stops

Another key issue emphasized in the District 1 Master Plan is the need for street lighting that is balanced with the ability to see the night skies and stars.

1.1.2 EXISTING LAND USE AND ACTIVITY CENTERS

Land uses in District 1 include residential, school, agriculture, and public uses. Key activity centers are shown in **Figure 1-2**.

Along **Blackwater School Road**, key activity centers include the Blackwater Community School, the District 1 Service Center, the Veterans Hall, and Gila River Fire Station 421. Low-density residential land use is also located along Blackwater School Road.

Toki Road, between Squawbush Road and the north terminus of the road at the Ke'li Akimel Ball Park, has residential land uses on mainly the east side of the road. A fire station is located on the southeast corner of Toki Road and Blackwater School Road. The west side of the road is primarily vacant. At the north end of Toki Road, the Ke'li Akimel Ball Park includes ball fields, recreational areas for children, and picnic facilities.

Ke'li Akimel Ball Park

Firestation Road has a mix of land uses including residences on both sides of the street, Gila River Telecommunications, and the former Fire Station.

On **Squawbush Road**, homes are located on the south side of Squawbush Road between Quail Road and Shegoi Road. A cemetery is located on the north side of the street between Firestation Road and Shegoi Road.

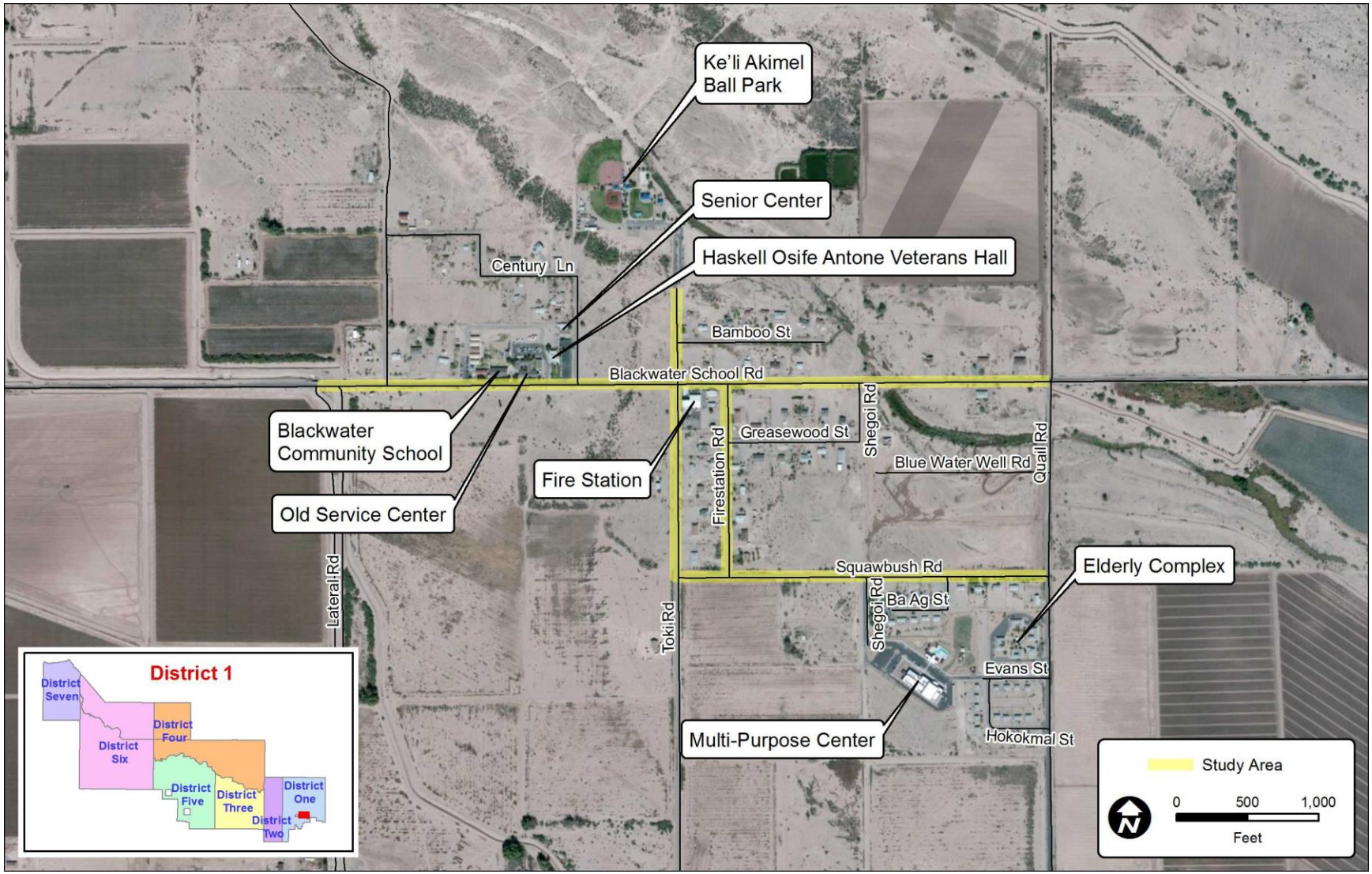


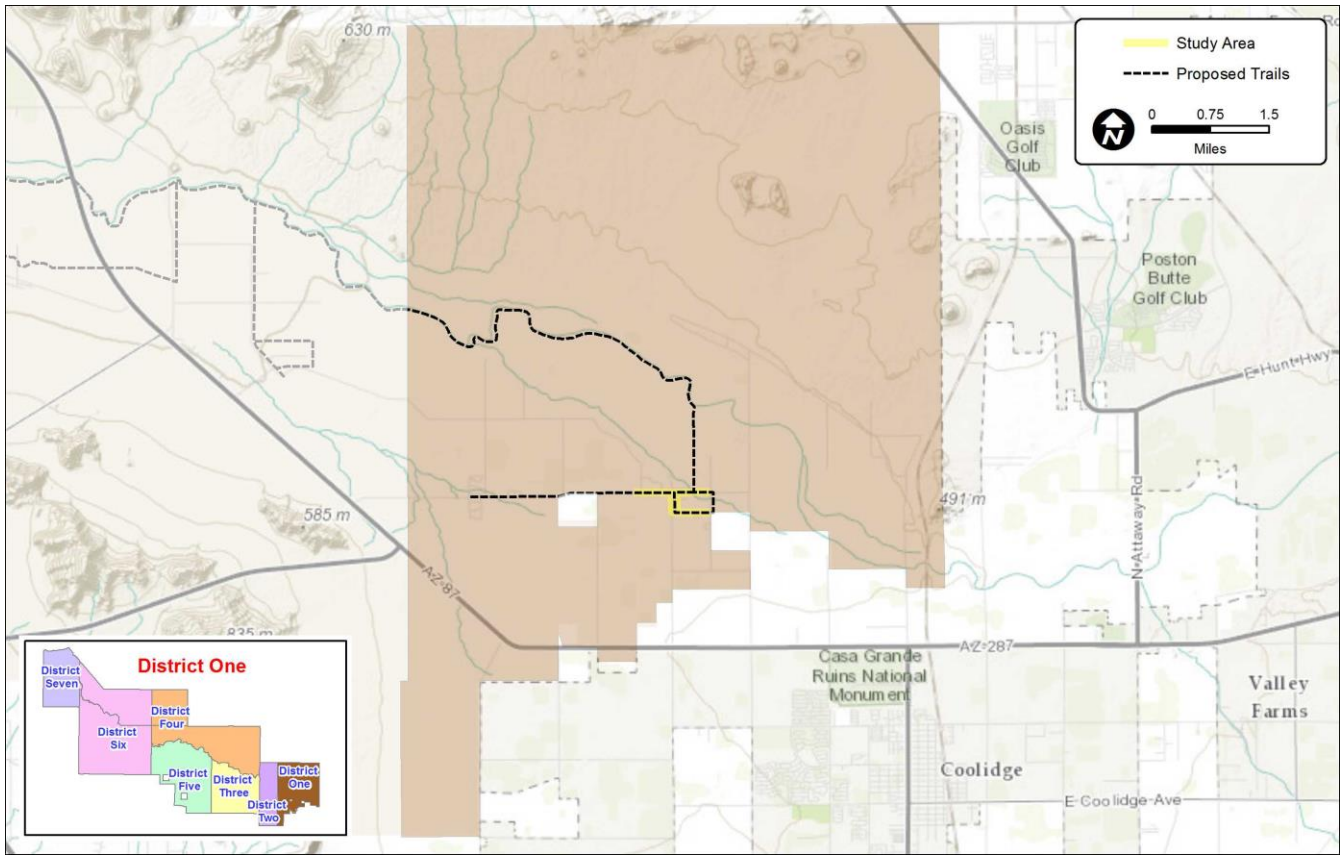
Figure 1-2: District 1 Activity Centers

1.1.3 FUTURE PLANNED LAND USE AND ACTIVITY CENTERS

Within the study area of District 1, the future land use is not planned to change significantly per the District 1 Master Plan. In general, residential areas and public use areas will remain the same. Additional public use areas are located at the northwest corner of Squawbush Road and Quail Road and north of Blackwater Road toward the east side of the study area.

A park and recreation land use area is planned at the northwest corner of Blackwater Road and Quail Road. A local commercial area is planned at the southwest corner of Blackwater Road and Toki Road.

The District 1 Master Plan recommends development of a Reservation-wide trail system. Within District 1 this planned trail system includes future trails on Blackwater School Road, Quail Road, Toki Road, and north to the Gila River using an extension of Shegoi Road. The trail system in the east half of the Reservation is shown in **Figure 1-3**.



Source: District 1 Master Plan

Figure 1-3: Proposed Reservation-wide Trail System in District 1

1.1.4 POPULATION DENSITY IN DISTRICT 1

Population density, according to the number of persons within a census block in the U.S. 2010 Census, is shown graphically in **Figure 1-4.** The graphic shows the census block boundaries in red. Residential areas are located between Toki Road and Firestation Road, and south of Squawbush Road. Most of the study area has a population density of 5 to 15 persons per acre.

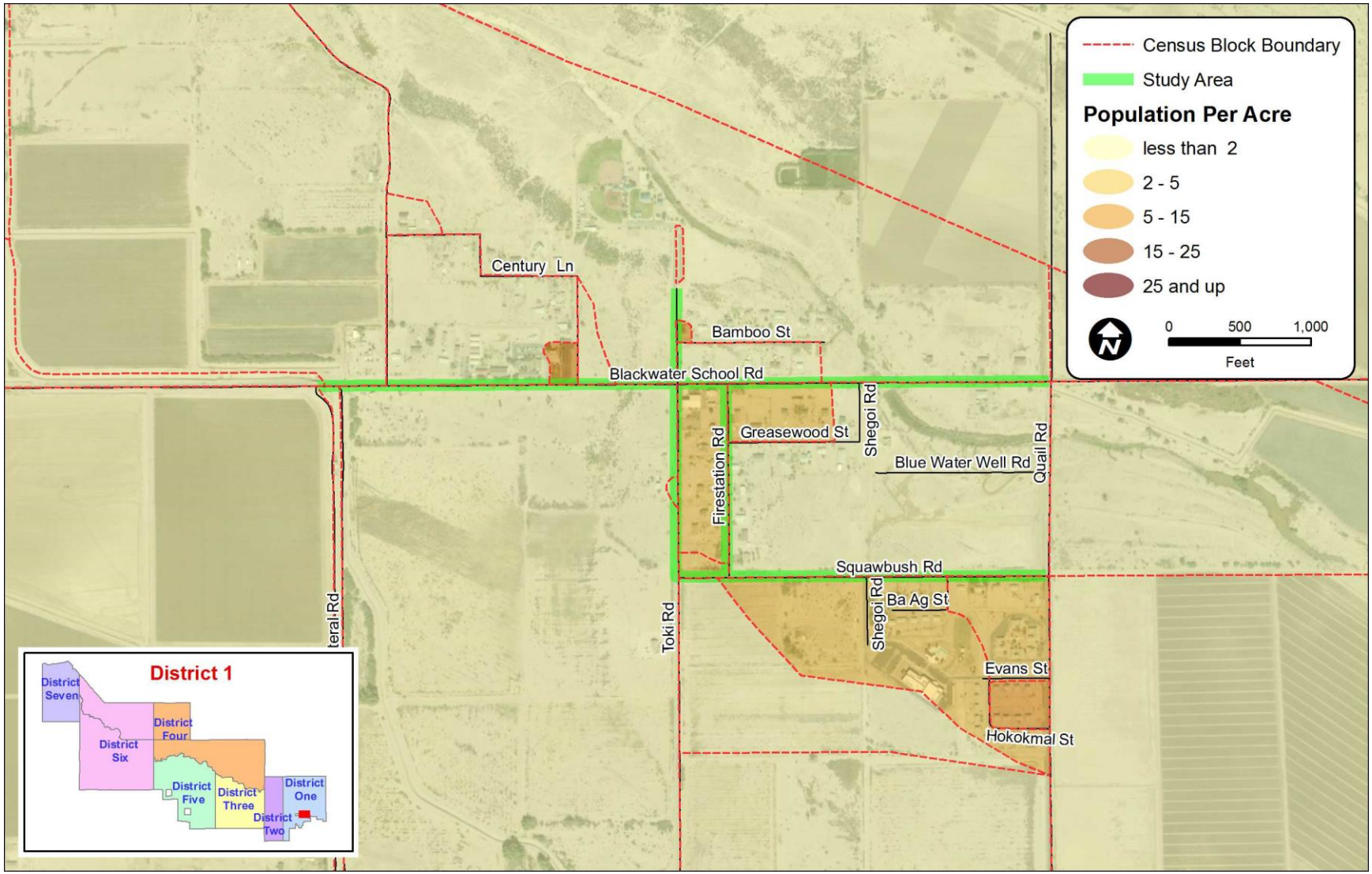


Figure 1-4: District 1 Population Location

1.2 EXISTING TRANSPORTATION CONDITIONS RELATING TO PEDESTRIANS AND BICYCLISTS

1.2.1 EXISTING STREET SYSTEM

Key roads in the study area are described below:

Blackwater School Road (**Rte 104)** is a two-lane paved roadway with six foot shoulders. Traffic volumes on Blackwater School Road, near the Blackwater Community School, averaged approximately 1,700 vehicles per day in 2014. Blackwater School Road was reconstructed in 2012-2013. The project included constructing box culverts and shoulder widening, placing aggregate base course and asphalt concrete pavement, and installing curb and gutter and pavement markings. Blackwater School Road has also indicated as an area for traffic calming in the Gila River Indian Community Transportation Plan (2011).

Toki Road (Rte 177) is a two-lane rural paved road with no shoulders. The Gila River Indian Community Transportation Study states that this road is experiencing pavement deterioration, which has also observed in the field. Traffic volumes on Toki Road were 318 vehicles per day in 2003, and are estimated to be approximately 400 vehicles per day in 2014. Stop signs are located on the north and south legs of the Toki Road/Blackwater School Road intersection. Street lighting is located at the driveway of the District Fire Station and at the intersection with Squawbush Road, and street lighting exists at the north end of the road, where the road transitions to a parking area for the Ke'li Akimel Ball Park.

Firestation Road (Rte 270) is a two-lane rural paved road with no shoulders. Traffic control includes stop signs at Blackwater School Road and at Squawbush Road. No traffic counts were available on this road; however, the approximately eight homes on this street indicate that traffic volumes are estimated to be less than 100 vehicles per day.

Squawbush Road (Rte 106) is a two-lane rural road with no shoulders. Street lights are located on the south side of the road between Shegoi Road and Quail Road. Stop signs are located on Squawbush Road at the intersections of Quail Road and Toki Road. The most recent traffic count data noted in the Tribal Transportation Inventory is 219 vehicles per day (2003 count). Traffic volumes are estimated to be approximately 300 vehicles per day in 2014.

1.2.2 PEDESTRIAN, BICYCLE, AND TRAFFIC COUNTS

Pedestrian, bicycle and traffic counts were obtained at two locations during the peak hours of 4 p.m. to 6 p.m. These locations are:

- Intersection of Blackwater School Road/Toki Road
- Intersection of Squawbush Road and Shegoi Road

A summary of the counts is provided in **Table 1-1**.

1.2.3 LEVEL OF SERVICE

Based on existing traffic count information, all study area roads in District 1 are operating in the Level of Service A to C range.

Table 1-1: 2014 Pedestrian, Bicycle, and Traffic Counts

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND		
Location	**Time period**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**
Blackwater School Rd / Toki Rd	4-6 p.m.	29	4	0	9	1	0	101	1	0	78	3	0
Shegoi Rd / Squawbrush Rd	4-6 p.m.	17	0	0	0	0	0	35	3	1	12	2	0

Source: Traffic count conducted May 13, 2014

1.2.4 ACCESS MANAGEMENT

The project team reviewed the number of driveway openings and intersections on each of the study area roads to determine whether there may be opportunities to improve pedestrian safety through access management. A brief overview of access points on each road and access management considerations on each road is provided in **Table 1-2.**

Table 1-2: Access Characteristics on Study Area Roads

ROAD NAME	NUMBER OF DRIVEWAY OPENINGS	NUMBER OF INTERSECTING STREETS	ISSUES AND OPPORTUNITIES
Blackwater School Road (Rte 104)	north side: 8 driveways (Quail Road to Toki Road) 5 driveways (Toki Road to Presbyterian Church Road) south side: 7 driveways between (Quail Road to Toki Road) 1 driveway (Toki Road to Lateral Road)	north side: 3 (Toki Road, 1 unnamed road and Presbyterian Church Road) south side: 5 (Toki Road, Firestation Rd, Greasewood Street, and Lateral Road and Quail Road)	There are some circular driveways that may provide an opportunity to reduce pedestrian conflicts if desired. It is desirable to minimize the number of driveway openings in order to reduce the number of conflicts points for pedestrians and bicyclists.
Toki Road (Rte 177)	east side: 7 driveways (Blackwater School Road to Squawbush Road.) driveways (Blackwater School Road to north terminus of Toki Road) 3 access points to a parking lot for the park. west side: 3 driveways	east side: 1 (Bamboo Street)	Some of the homes on the east side of the street appear to have driveway access on both Firestation Road and Toki Road. If one of the two driveways is closed, it will reduce potential pedestrian and vehicle conflicts.
Firestation Road (Rte 270)	east side: 6 driveways west side: 4 driveways		Some of the homes on the west side of the street appear to have access from both Firestation Rd and Toki Road. If one of the two driveways is closed, it will reduce potential pedestrian and vehicle conflicts.
Squawbush Road (Rte 106)	north side: no driveways south side: 6 driveways	south side: 1 (Ba'Ag Street)	Two properties appear to have informal driveways on Squawbrush Road, and the main driveways on Ba'Ag Street. If one of the two driveways is closed, it will reduce potential pedestrian and vehicle conflicts.

Source: Visual inspection

1.2.5 ROAD WIDTHS AND RIGHT-OF-WAY WIDTHS

Current road widths and right-of-way widths are summarized from Tribal Transportation Inventory data as shown in **Table 1-3**. Most of the lands surrounding the study area roads are allotted lands.

Table 1-3: Roadway and Right-of-Way Widths

ROAD NAME	ROADWAY WIDTH (FEET)	RIGHT-OF-WAY WIDTH (FEET)
Blackwater School Road (Rte 104)	24	80
Toki Road (Rte 177), Squawbush Road to Blackwater School Road	24	80
Toki Road, Blackwater School Road to north termini	28	80
Firestation Road (Rte 270)	25	50
Squawbush Road (Rte 106)	27	0

Source: Tribal Transportation Inventory, Route Summary Report (Greenbook), FY 2014 Inventory

1.2.6 PLANNED ROAD IMPROVEMENT PROJECTS

Short- and medium-range projects recommended in the Gila River Indian Community Transportation Study include the following:

- Toki Road, Blackwater Road to Dove Road – resurface road. The Gila River Indian Community Transportation Study (2011) stated that the road can be widened to provide shoulders if desired.

The Tribal Transportation Improvement Program includes a project to mill and repave Toki Road, from Blackwater School Road to Dove Road. This project is scheduled for fiscal year 2019.

It should be noted that Blackwater School Road has been reconstructed in 2013.

1.2.7 FUNCTIONAL CLASSIFICATION

Roads in the study area that are functionally classified in the Tribal Transportation Inventory are shown in **Table 1-4**.

Table 1-4: Tribal Transportation Inventory Functional Classification

DISTRICT 1 STUDY AREA ROADS	CLASS	DESCRIPTION
Firestation Road (Rte 270)	Class 3	Streets that is located within communities serving residential areas.
Blackwater School Road (Rte 104)	Class 4	Rural major collector road is collector to rural local roads.
Squawbush Road (Rte 106) Toki Rd (Route 177)	Class 5	Rural local road that is either a section line and/or stub type roads, make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. Also included are roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes.

Source: Bureau of Indian Affairs

The Gila River Indian Community Transportation Study (February 2011) recommended that Blackwater School Road be federally functionally classified as a minor collector street.

1.2.8 PAVEMENT CONDITIONS

Pavement conditions for study area road are summarized in **Table 1-6**. As mentioned above, Toki Road is scheduled to be resurfaced in the Tribal Transportation Improvement Program.

Table 1-5: Pavement Conditions

ROAD NAME	ROADBED CONDITION CODE IN THE TRIBAL TRANSPORTATION INVENTORY	DESCRIPTION OF PAVEMENT CONDITIONS, BASED ON REVIEW OF AERIALS	COMMENTS
Blackwater School Road (Rte 104)	5- A roadbed constructed to adequate standards with good horizontal and vertical alignment and proper drainage	Excellent – road has been reconstructed in 2013.	
Toki Road (Rte 177)	5- A roadbed constructed to adequate standards with good horizontal and vertical alignment and proper drainage	Extensive alligator cracking and longitudinal cracks.	This road is programmed to be reconstructed between Blackwater School Road and Dove Road.
Firestation Road (Rte 270)	5- A roadbed constructed to adequate standards with good horizontal and vertical alignment and proper drainage	There is some alligator cracking, longitudinal cracking and edge raveling.	
Squawbush Road (Rte 106)	5- A roadbed constructed to adequate standards with good horizontal and vertical alignment and proper drainage	Some transverse or longitudinal cracking noted.	

Source: Tribal Transportation Inventory and visual inspection using Google Earth aerial maps

1.2.9 EXISTING SIDEWALKS AND CROSSWALKS

Sidewalks are currently located in the areas around the Multipurpose Center and near the Ke'li Akimel Ball Park at the north end of Toki Road. Location of existing sidewalks and crosswalks are shown in **Figure 1-5.** The condition of the existing sidewalks is good, and no broken sidewalk sections were observed.

1.2.10 EXISTING STREET LIGHTING

Street lights are mainly located on Shegoi Road (the road serving the Multipurpose Center), and on the east end of Squawbush Road. Street lighting is shown on the needs map on **Figure 1-7**.

1.2.11 CRASH DATA

Gila River Indian Community crash data has been obtained and analyzed for pedestrian and bicycle crashes within the Community. The crash data spanned a 5 year period from January 1, 2009 to February 4, 2014. There were no pedestrian or bicycle crashes on study area roads in that time period.

A pedestrian crash occurred approximately 2.4 miles west of the study area, on Blackwater School Road near Sparrow Road. This was a fatal pedestrian crash that occurred in 2010 in dark conditions. The pedestrian was crossing Blackwater School Road. No contributing circumstances were listed for this crash.

1.2.12 TRANSIT AND SCHOOL BUS ROUTES AND STOPS

There is no public transit service currently operating in District 1. Discussions with school district personnel have indicated that bus drivers typically pick up students at or very close to their homes. The Transportation Director for the Blackwater Community School indicated that there are very few walkers to the school, and students are primarily either bused to school or their parents drive them to school. There are a few locations where there is more than one student picked up, but these areas are primarily at the end of cul-de-sacs, and are not located on the study area roads.

Discussion with the Transportation Director at Coolidge High School did not identify any potential bus stop pullout areas within the study area. Similarly, the Transportation Director for the Ira Hayes High School and the Casa Blanca Community School indicated that bus pickups were typically at homes. A review of bus stop locations for the Sacaton School District did not indicate any stops on study area roads in District 1.

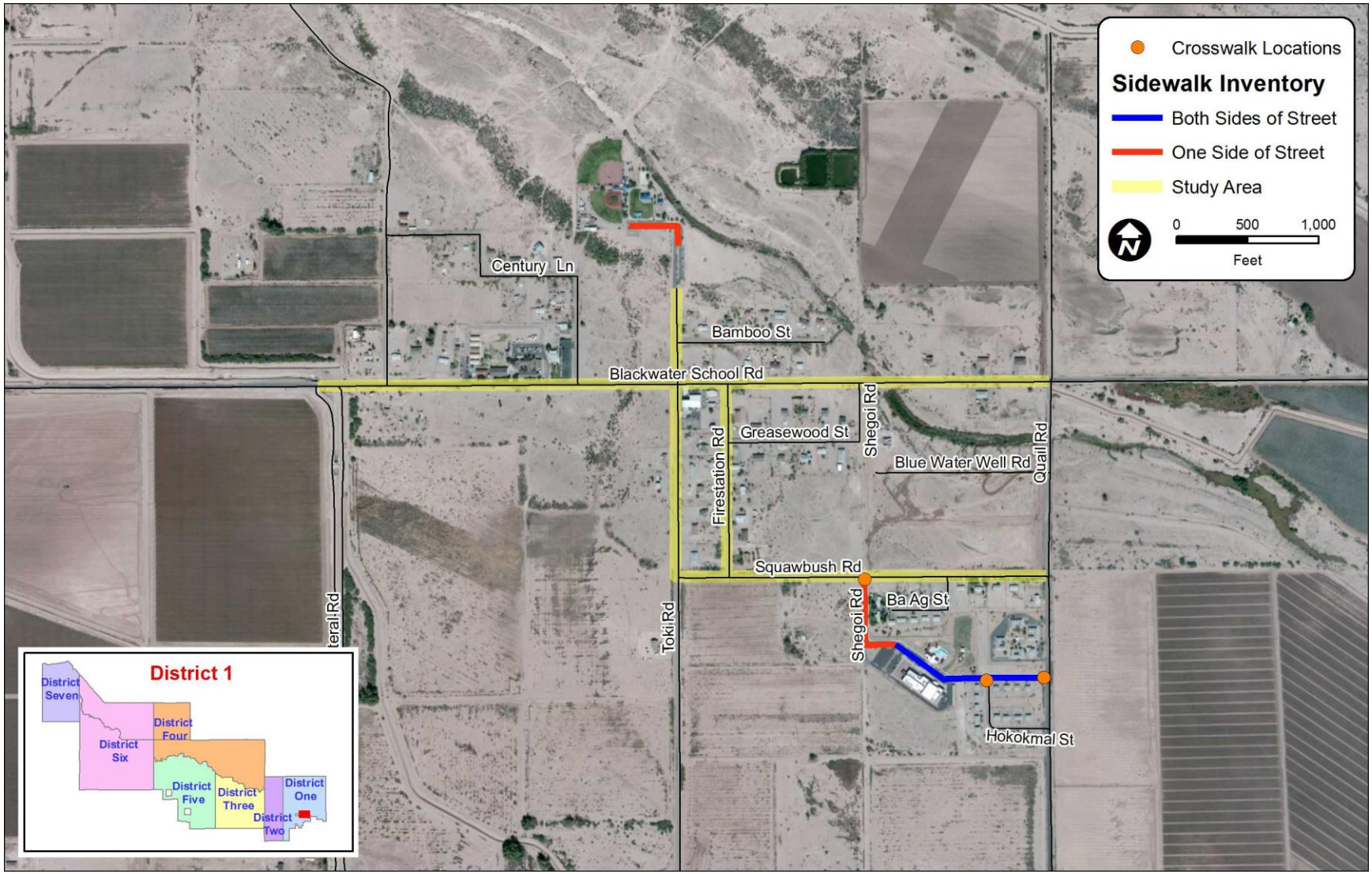


Figure 1-5: District 1 Sidewalks

1.3 DRAINAGE AND ENVIRONMENTAL CONDITIONS

1.3.1 CHARACTERISTICS OF THE PHYSICAL, NATURAL, AND CULTURAL ENVIRONMENTS

Biological Resources

The District 1 study area is within the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community. Based on a review of the U.S. Fish and Wildlife Service Threatened and Endangered Species Natural Resources List and aerial photos, there is no suitable habitat for threatened or endangered species in the study area. However, the study area may provide suitable habitat for two candidate species (Sonoran Desert tortoise and Tucson shovel-nosed snake). If there is a federal nexus (federal funding, Section 404 permitting, etc.) then improvements identified in this study will require a biological evaluation by a qualified biologist during the environmental clearance process.

Section 404/401 of the Clean Water Act

Based on the review of aerial photography, the Little Gila River extends through the study area and there may be unnamed washes that could be considered Waters of the United States under the jurisdiction of the U.S. Army Corps of Engineers. If the proposed projects will impact these potential Waters of the United States, then a Section 404 permit and a Section 401 certification will be required.

Hazardous Materials

The U.S. Environmental Protection Agency Envirofacts website has been reviewed for Environmental Protection Agency regulated facilities in the study area. There are no facilities within the study area and the facilities in the vicinity of the study area are 1) of sufficient distance and/or down-gradient from the project area as to not pose an environmental concern; 2) do not have violations; or 3) have completed remediation/compliance.

Cultural Resources

Eight previous archaeological surveys have been conducted within the study area of District 1, with the exception of a 0.59 acre section along Blackwater School Road. This 0.59 acre section will need to be surveyed, in consultation with the Gila River Indian Community, if an improvement project is located in this area. Four previous archaeological sites and one historically documented cultural resource have been recorded.

Drainage Issues and Flooding

Drainage infrastructure on study area roads is shown in **Figure 1-6.** It should be noted that flooding, ponding, and sheet flows are a natural occurrence during every rain storm, and is a major problem for the walking community, especially those that do not have alternative means of transportation, which can include the elderly, handicapped and children. Currently, the Gila River Indian Community Land Use Planning and Zoning Department is developing a floodplain ordinance that is scheduled for completion in spring, 2015.

A brief overview of drainage conditions on study area roads is provided as follows.

Blackwater School Road (Rte 104) is a two-lane paved roadway with six foot shoulders. The existing roadway does not have curb and gutter or sidewalks on either side of the road. Minor roadside ditches or swales are located on either side of the roadway. The ditches have the capacity for very minor

storms. Flows above the capacity of the ditches may overtop the road. Sediment was observed on the pavement either from local drainage or windblown sources. There are two culvert crossings of Blackwater School Road. One culvert is located about 300 feet west of Toki Road. The other culvert is located about 1,120 feet east of Firestation Road. Neither of these culverts has the capacity for large flood events.

Toki Road (Rte 177) is a two-lane rural paved road with no shoulders that is a minor collector for the area. The existing roadway does not have curb and gutter or sidewalks on either side of the road. A minor roadside ditch or swales are located on the west side of the roadway. The ditch only has capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. There are no known culvert crossings of Toki Road.

Firestation Road (Rte 270) is a two-lane rural paved road with no shoulders. The existing roadway does not have curb and gutter or sidewalks on either side of the road. No roadside ditches or swales are located on either side of the roadway. If ditches were present at one time, they have been filled with sediment. Sediment has been observed on the pavement either from local drainage or windblown sources. There are no known culvert crossings of Firestation Road.

Squawbush Road (Rte 106) is a two-lane rural road with no shoulders. The existing roadway does not have curb and gutter or sidewalks on either side of the road. Minor roadside ditches or swales are located on either side of the roadway. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. The very east portion of the roadway may lie within the Gila River 100-year floodplain. **Figure 1-6** shows one culvert crossing of Squawbush Road at Quail Road. This culvert does have the capacity for large flood events. Minor driveway culverts for residences are located at the east end of Squawbush Road.

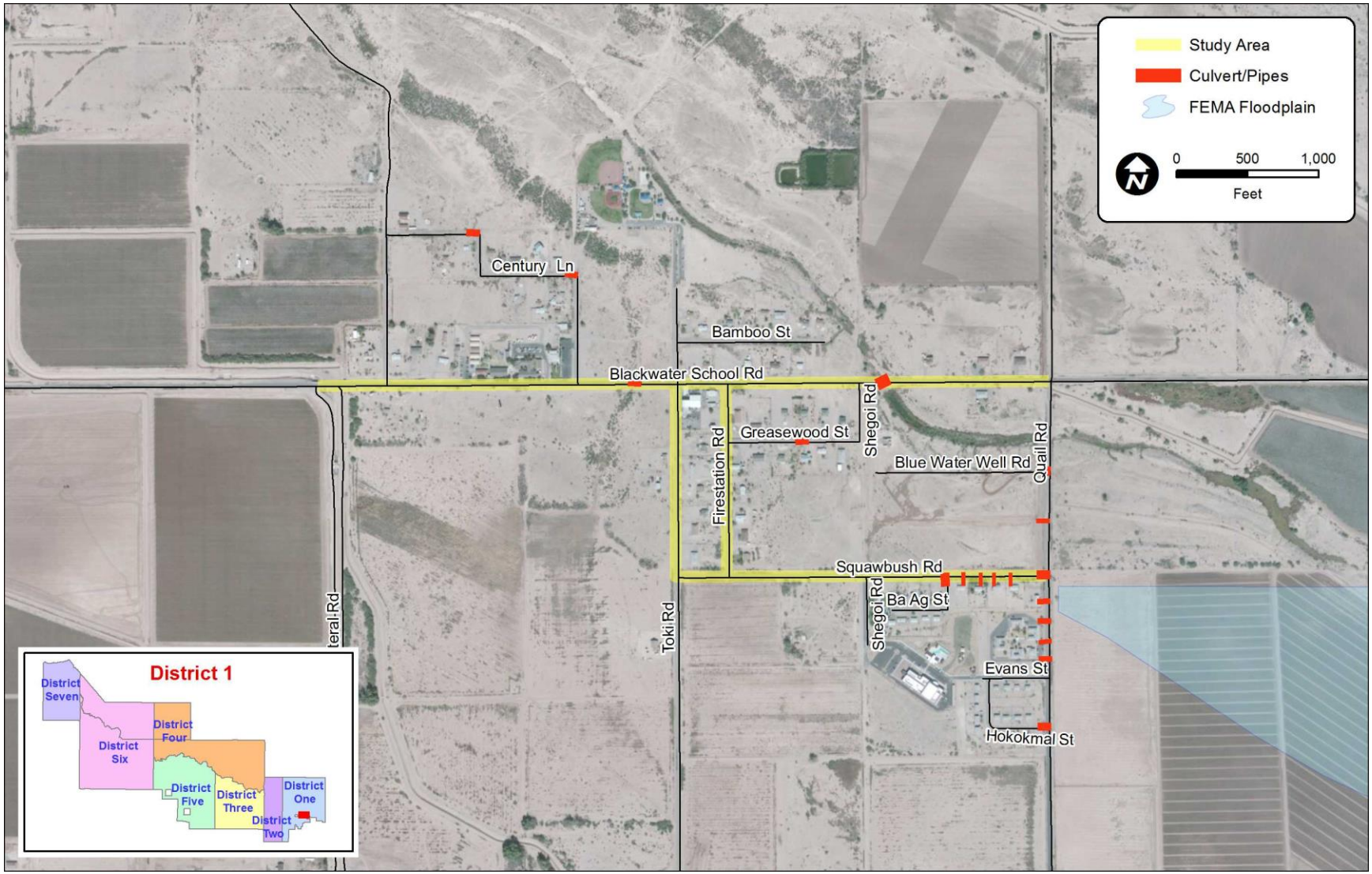


Figure 1-6: District 1 Drainage Infrastructure

1.4 SUMMARY OF PEDESTRIAN SAFETY NEEDS IN DISTRICT 1

Key pedestrian safety needs are shown graphically in **Figure 1-7.** Recommended pedestrian safety needs were identified through a process which included extensive public outreach, input from stakeholders, analysis of crash data and road conditions, and analysis of how pedestrian facilities can link residents to activity centers, such as schools, parks, and Multipurpose Centers and Service Centers.

On Toki Road, Firestation Road, and Squawbush Road, pedestrians typically must walk on the roadbed, because the roads have limited or no shoulder areas. Blackwater School Road has been recently reconstructed and has an adequate shoulder area, but does not have a sidewalk or path. Sidewalks have been constructed at the District 1 Multipurpose Center, but a more continuous system is needed for residents to travel to the Multipurpose Center and other activity areas.

There is little room to walk on Squawbush Road, and the vegetation encroaches right up to the road edge

Key needs include the following:

Blackwater School Road:

- Provide sidewalks and street lighting along the north side of Blackwater School Road.
- Provide a crosswalk at Toki Road and advance crosswalk markings.
- Reduce speeds through the Village area.
- A longer-term need is to provide a trail to connect to the housing areas west of the study area path connections in accordance with the proposed Reservation Trail System.

Firestation Road

- Provide sidewalk and street lighting along both sides of Firestation Road.

Toki Road

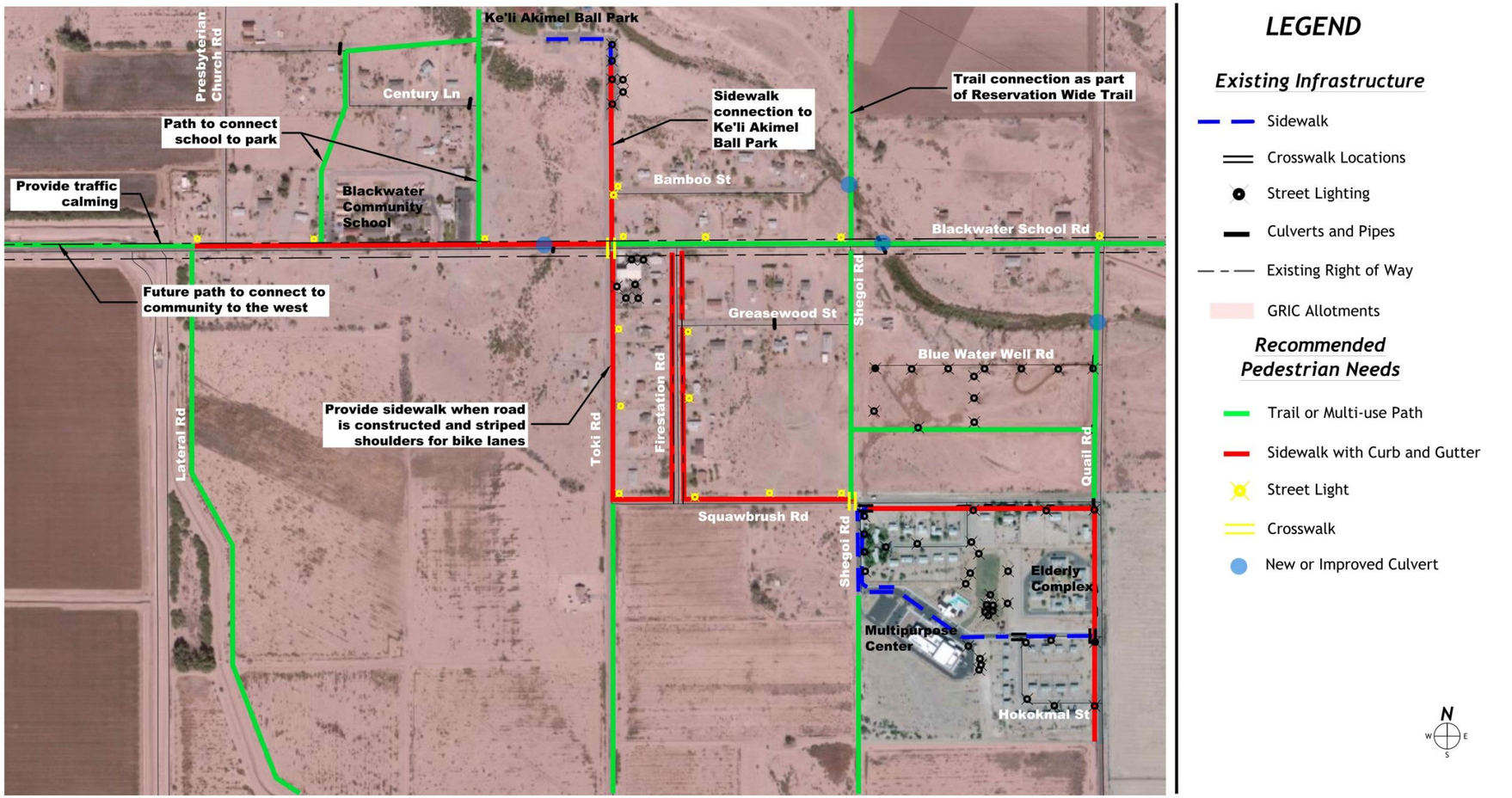
- Provide a sidewalk on the east side of Toki Road, between Blackwater School Road and the Ball Park at the north end of Toki Road.
- Provide street lighting on the east side of Toki Road.

Squawbush Road

- Provide a sidewalk and lighting on the north side of Squawbush Road, between Toki Road and Shegoi Road.
- Provide a sidewalk on the south side of Squawbush Road, between Shegoi Road and Quail Road.

Other

- Provide trail connections from Blackwater Community School to Ke'li Ball Park on Toki Road.



District 1 Study Area

Figure 1-7: District 1 Pedestrian Needs

1.5 RECOMMENDED IMPROVEMENTS TO MEET IDENTIFIED NEEDS

Improvement projects were developed with focus on a broad range of projects that multiple departments could potentially implement. An overview of projects is shown in **Figure 1-8**, and is summarized in **Table 1-6**. Project sheets that describe recommended improvements on each road are provided following **Table 1-6**. It should be noted that a summary of recommended drainage improvements is provided in **Appendix B**. This Appendix also provides maps of the drainage improvements.

1.5.1 STUDENT PEDESTRIAN SAFETY

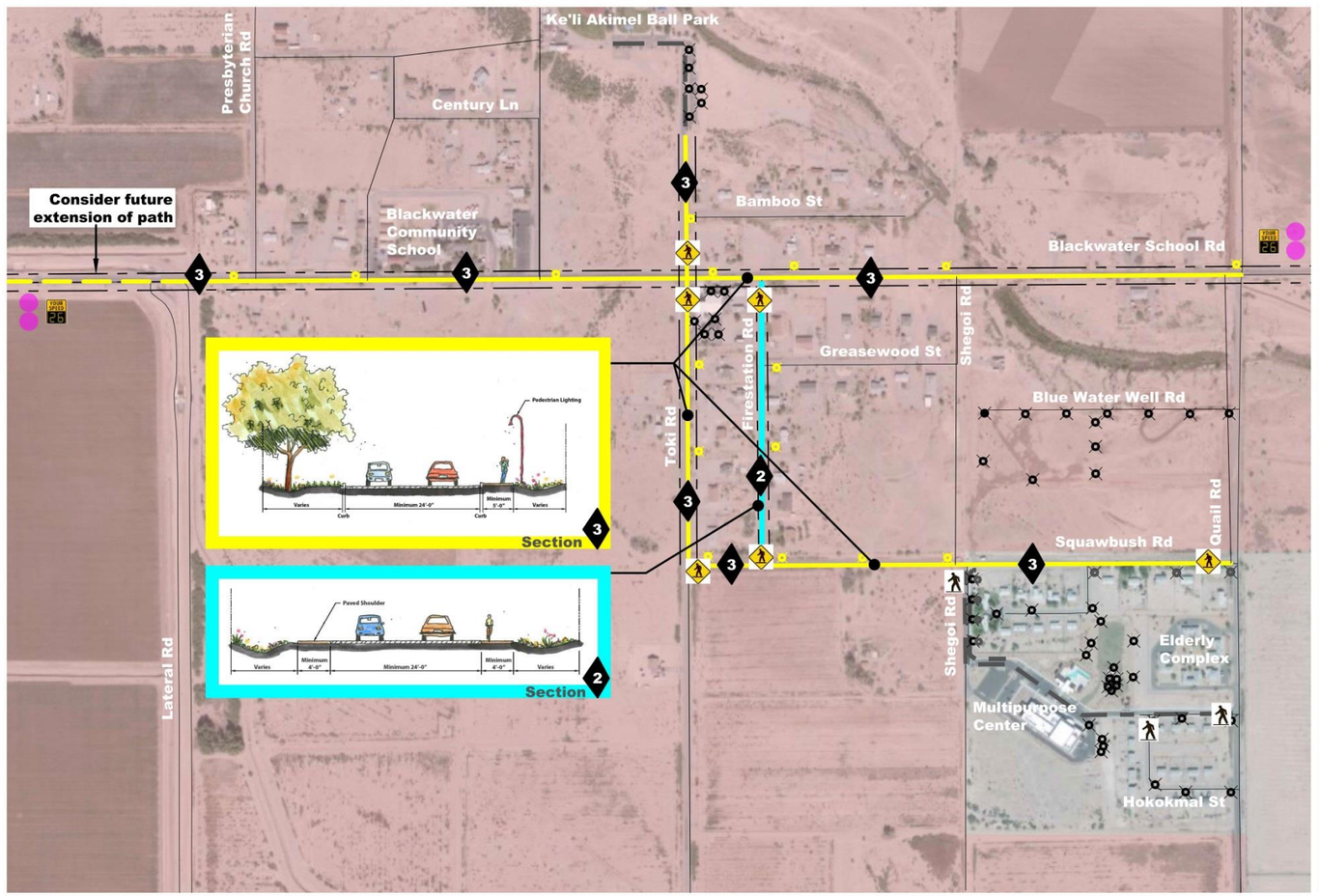
One emphasis of the study has been the identification of pedestrian safety improvements to enhance safety for school children. This included investigating potential improvements for school bus stop locations, based on discussions with school transportation providers and the Tribal Youth Council. In general, school children in District 1 are typically picked up at or near their homes, and no common school bus stop locations were identified in the study area. However, the recommended sidewalk, speed control, street lighting, and crosswalk improvements will make it safer for school children, as well as the general public, to walk in the Community.

1.5.2 ACCESS MANAGEMENT TECHNIQUES FOR PEDESTRIAN SAFETY

As further development occurs in the Community, access management techniques can be used to help improve pedestrian safety. Examples of access management techniques are:

- Reducing the number of driveways, within a given distance (per block or mile) through provisions of frontage roads and closing multiple driveways that serve one location.
- Providing greater separation between driveways.
- Providing a safe refuge for pedestrian crossings with raised medians.
- Providing right-turn lanes for high-volume driveways.
- Constructing a landscaped or other clearly marked buffer helps to visually define sidewalk and driveway locations.
- Providing a clear zone free of visual obstructions such as signs, large trees and bushes, or parked vehicles, which will allow pedestrians to be seen by drivers and to see oncoming vehicles.

In District 1, access issues and opportunities were identified relating to reducing driveway access where there are either circular driveways or driveways with access to more than one street. These types of improvements could be considered if the roads are reconstructed, but are not specific recommendations of this study.



LEGEND

Existing Infrastructure

- Sidewalk
- Crosswalk Locations
- Street Lighting
- Existing Right of Way
- GRIC Allotments

Recommended Pedestrian Safety Improvements

- Install Gateway Signage
- Install Street Light
- Install Speed Monitors
- Install Standard Crosswalk Striping at Stop sign

N W E S

Note: Symbols are schematic only (not to scale)

District 1 Study Area

Figure 1-8: District 1 Recommended Pedestrian Safety Improvements

Table 1-6: District 1 Recommended Pedestrian Safety Improvement Projects

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Blackwater School Road (Rte 104)				
Construct sidewalk on north side of road	Blackwater School Road, Lateral Road to Quail Road	0.94	Asphalt – 445,000 Concrete – 605,000	Costs include sidewalk paving option (asphalt or concrete), curb and gutter, and miscellaneous signing. It is recommended that two drainage pipes be upgraded with additional sections and extended beyond the new shoulder and one drainage pipe extended beyond the new shoulder. Two new ditches will be required to divert flow to culverts. There are right-of-way constraints near the Blackwater Community School. This may require moving a fence, or constructing a retaining wall.
Construct street lighting	Blackwater School Road, Lateral Road to Quail Road	0.94	295,000	Assumes solar lighting at 200 foot spacing.
Install radar speed monitors (two locations)	N/A	N/A	15,000	Cost assumes sign, post and foundation.
Install gateway signage (two locations)	N/A	N/A	3,000	Cost assumes sign, post and foundation.

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Speed enforcement	N/A	N/A	Assumed this will be coordinated through regular patrols	This would need to be coordinated through the Police Department.
Future path extension	Lateral Road to 1.44 miles west of Lateral Road	1.44	Asphalt – 630,000 Concrete – 800,000	This path will link residential areas. Further study needed to determine path usage (it is outside of the study limits). There will be engineering constraints with extending the path over bridge/canal areas.
Toki Road, Squawbush Road to north terminus				
Construct sidewalk on east side of road	Squawbush Road to north terminus	0.39	Asphalt – 170,000 Concrete – 215,000	Costs include curb and gutter, sidewalk paving option (asphalt or concrete), and miscellaneous signing. This project could potentially be phased with road reconstruction.
Install crosswalk at stop signs at Blackwater School Road (1 location)	N/A	N/A	1,000	Assumes a standard crosswalk and 1 sign.
Construct street lighting	Blackwater School Road to Squawbush Road	0.39	130,000	Assumes solar lighting at 200-foot spacing.
Firestation Road (Rte 270)				
Construct shoulders on both sides of street	Squawbush Road to Blackwater School Road	0.26	50,000	Costs assume grading, asphaltic base and asphaltic concrete and miscellaneous signing.

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Construct street lights	Squawbush Road to Blackwater School Road	0.26	82,000	Assumes solar lighting at 200-foot spacing.
Install crosswalks at the stop signs at Blackwater School Road and Squawbush Rd (2 locations)	Blackwater School Road/ Firestation Road intersection and Blackwater School Road/ Squawbush Road intersection	N/A	1,000	Assumes a standard crosswalk.
Squawbush Road (Rte 106)				
Construct sidewalk on one side of street	Toki Road to Quail Road	0.49	Asphalt –240,000 Concrete – 325,000	Costs include sidewalk paving option (asphalt or concrete), curbing, and miscellaneous signing. There are drainage issues for designing a sidewalk at this location. The estimate assumes five pipes are replaced and relocated to south and a new ditch will be required to accommodate the widened shoulder.
Construct street lights	Toki Road to Shegoi Road	0.25	165,000	
Standard crosswalks at stop signs at Toki Road and Quail Rd (2 locations)	Squawbush Road / Toki Road and Squawbush Road/ Quail Road.	N/A	1,000	

*Note: costs are based on 2014 estimated costs and include a 30% contingency to account for mobilization (8%), miscellaneous work (12%), construction surveying and layout (2%), erosion control (1%), contractor quality control (2%), furnish water supply (1%), and maintenance and protection of traffic (4%). See **Appendix B** for further information regarding recommended drainage improvements.

Project Information Sheet - Blackwater School Road (Rte 104)

Project Name	Blackwater School Road Pedestrian Safety Improvements		
Project Location	Blackwater School Road, Lateral Road to Quail Rd (0.94 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Paths: Construct sidewalk with curb and gutter on north side of street. Consider future extension of sidewalk or a path west of Lateral Road.		
	Drainage Improvements: It is recommended that two pipes be upgraded with additional sections and extended beyond the new shoulder and one pipe extended beyond the new shoulder. Two new ditches will be required to divert flow to the upgraded pipes.		
	Lighting: Install solar lighting between Lateral Road and Quail Road.		
	Crosswalks: Install high visibility crosswalk at: Blackwater School Road / Toki Road (when warranted).		
	Traffic Calming: Provide gateway signs to let drivers know they are entering a District 1 population center. Implement speed monitoring devices such as portable radar signs. Provide speed enforcement periodically. Encourage public to notify police of speeding activity through the Community.		
Project Justification	Blackwater School Road is a rural major collector road which provides east-west access with daily traffic volumes of 1,200-1,300 vehicles per day. Pedestrian improvements on this road will help to provide more connectivity between the Blackwater Community School, the District 1 Multipurpose Center, residences, and the Ke'li Akimel Ballpark at the north end of Toki Road. Traffic calming will slow vehicles and improve the safety and comfort of bicyclists and pedestrians.		
Cost Estimate	See Table 1-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	Proposed cross section will need to narrow in Blackwater Community school area.		

Blackwater School Road looking east

Project Information Sheet - Toki Road (Rte 177)

Project Name	Toki Road Pedestrian Safety Improvements		
Project Location	Toki Road, Squawbush Road to Ke'li Akimel Ballpark (0.39 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Path: Construct sidewalk on east side of street with curb and gutter.		
	Drainage Improvements: Sidewalk will need to be designed adjacent to swales.		
	Lighting: Install solar lighting between Blackwater School Road and Squawbush Road.		
	Crosswalks: Stripe east-west crosswalk at Blackwater School Road intersection.		
Project Justification	Toki Road is a rural local road which carries approximately 400 vehicles per day. It serves as an important link between the District 1 Multipurpose Center, the Ke'li Akimel Ballpark, and the Blackwater Community School.		
Cost Estimate	See Table 1-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	Toki Road is planned to be reconstructed in the Tribal Transportation Program. A possibility may be to use millings from reconstruction of Toki Road could be used in the development of an asphalt path as a cost–saving measure.		

Toki Road at Blackwater School Road, looking north

Project Information Sheet - Firestation Road (Rte 270)

Project Name	Firestation Road Pedestrian Safety Improvements		
Project Location	Firestation Road– Squawbush Road to Blackwater School Road (0.26 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Shoulder improvements: Construct 6-foot wide paved shoulders on both sides of the street for bicycling and walking.		
	Street Lighting: Construct solar street lighting between Squawbush Road and Blackwater School Road.		
	Crosswalks: Stripe east–west pedestrian crosswalks at the stop signs at Blackwater School Road and Squawbush Road.		
Project Justification	Firestation Road is residential street with traffic volumes estimated to be less than 200 vehicles per day. It is recommended that a shoulder area be constructed on both sides of road to provide an area for walking and bicycling.		
Cost Estimate	See Table 1-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	This project may be feasible if more growth occurs on Firestation Road. Typically the Gila River Indian Community Department of Transportation does not provide shoulders on residential roads.		

Firestation Road, looking north towards Blackwater School Road

Project Information Sheet - Squawbush Road (Rte 106)

Project Name	Squawbush Road Pedestrian Safety Improvements		
Project Location	Squawbush Road, Toki Road to Quail Road (0.49 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Path: Provide curb with adjacent paved sidewalk on north side of street between Toki Road and Shegoi Road and south side of street between Shegoi Road and Quail Road.		
	Drainage Improvements: Five existing pipes will need to be replaced and relocated to the south and a new ditch will be required to accommodate the widened shoulder. Sidewalk would need to be designed adjacent to swales, especially between Shegoi Road and Quail Road.		
	Street Lighting: Install solar street lighting between Toki Road and Shegoi Road.		
	Crosswalks: Stripe north-south crosswalks at Toki Road and Quail Road.		
Project Justification	Squawbush Road is a rural local road with traffic volumes in the range of 200-300 vehicles per day. Residences are located on the south side of the street between Shegoi Road and Quail Road. This road provides access to the District 1 Multipurpose Center.		
Cost Estimate	See Table 1-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		

Squawbush Road, looking east

1.6 IMPROVEMENT PROJECT PRIORITIZATION

The recommended transportation improvement projects will address critical pedestrian and bicycle needs.

A matrix has been developed to assign the priorities for various improvement project elements into short-, mid- or long range time frames. The prioritization is summarized in **Table 1-7**. However, as funding becomes available, or priorities change, these projects can be re-prioritized.

Table 1-7: District 1 Pedestrian Safety Improvements Prioritization

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Blackwater School Rd (BIA Rte 104), Lateral Road to Quail Road																		
Construct sidewalk on north side of road	1	2	0	2	4	1	2	2	2	2	2	2	2	0	1	25	Mid	There is reduced right-of-way near the Blackwater Community School.
Install street lighting	1	2	0	2	4	1	2	2	1	2	2	2	2	0	1	24	Long	
Install radar speed monitors (two locations)	1	2	0	2	4	3	2	2	1	2	2	1	1	5	1	29	Mid	
Install gateway signage (two locations)	1	2	0	2	4	4	2	2	1	2	2	1	1	5	1	30	Short	
Coordinate with Police Department on speed enforcement	1	2	0	2	4	5	2	2	1	2	1	1	1	5	1	30	Short	
Sidewalk extension - Lateral Road to 1.44 miles west	1	2	0	2	4	1	2	2	2	2	2	1	2	0	1	24	Long	There are design constraints at the canal area.
Toki Road (BIA Rte 177), Squawbush Road to Ke'li Akimel Ball Park																		
Construct sidewalk on east side of road	4	2	2	2	2	1	2	2	2	2	2	2	2	5	2	34	Short	
Install street lighting	4	2	0	2	2	2	2	2	1	2	2	2	2	0	2	27	Mid	

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
North-south crosswalk at Squawbush Road	4	2	0	2	2	5	2	2	1	2	2	2	2	5	1	34	Short	
Firestation Road (Rte 270), Squawbush Road to Blackwater School Road																		
Provide six-foot paved shoulder on both sides of road	3	2	0	1	1	2	2	2	2	2	2	2	2	5	1	29	Mid	
Install street lighting	3	2	0	1	1	2	2	2	1	2	2	2	2	5	1	28	Mid	
Install east-west crosswalk at Blackwater School Road	3	2	0	1	1	5	2	2	1	2	2	2	2	5	1	31	Short	
Squawbush Rd (Rte 106), Toki Road to Quail Road																		
Construct sidewalk on south side of road	3	2	0	2	2	1	2	2	2	2	2	2	2	0	1	25	Mid	
Install street lighting (Toki Road to Shegoi Road)	3	2	0	2	2	1	2	2	1	2	2	1	1	5	1	27	Mid	
Install north-south crosswalk at Quail Road and Toki Road	3	2	0	2	2	5	2	2	1	2	2	2	2	5	1	33	Short	

2 District 2

2.1 DISTRICT 2 STUDY AREA AND OVERVIEW

District 2 is the second-most eastern District in the Community and is named Hashan Kehk, which translates to Saguaro Stand. District 2 is approximately 30 square miles and is surrounded by District 1 to the east, District 3 to the west, the City of Casa Grande to the south, and the San Tan Mountains to the north. The Gila River bisects the northern half of the District, and District 2 has historically experienced flooding issues.

There are few alternatives to walking on the roads within the study area. The roadside topography can be ungraded dirt, and persons were observed walking on makeshift trails and having difficulties walking. There are limited or no shoulders for bicycling or walking.

A new Multipurpose Center is currently being constructed on Park Street, which will attract pedestrian and bicycle trips to the area.

The study area is located approximately in the middle of District 2 in the Town of Sacaton Flats. The study area roads are shown in Figure **2-1** and include the following BIA routes:

- Sacaton Flats Road (Rte 94)
- Mish Ki Road (Rte 155)
- Park Street (Rte 261)
- Vajikut Road (Rte 261)

2.1.1 DISTRICT 2 MASTER PLAN

The District 2 Master Plan has been used to help guide the development of pedestrian safety projects. Key objectives relating to the provision of providing safe places for pedestrians and bicyclists include the following:

- Establish a network of sidewalks and/or pathways that connect public facilities.
- Establish a network of sidewalks and/or pathways that connect the Service Center, residential neighborhoods, and recreational amenities.
- Develop a multi-use trail program (hike, bike, equestrian, etc.) to connect recreational facilities with major activity centers.
- Promote pedestrian safety by providing low-level lighting along sidewalks, specifically in areas connecting residential areas with recreation and public facilities.
- Utilize striping to designate bike lanes on existing roadways, as appropriate.
- Provide covered school bus stops to keep children safe.

The District 2 Master Plan recommends implementing flood control improvements at or near the Sacaton Flats Subdivision at Hashan Kehk and Mish Ki Road.

2.1.2 EXISTING LAND USE AND ACTIVITY CENTERS

The existing land use in District 2 is mainly open space with some low-density residential, parks and recreation, and agricultural land uses scattered throughout. Key activity centers are shown in **Figure 2-2**.

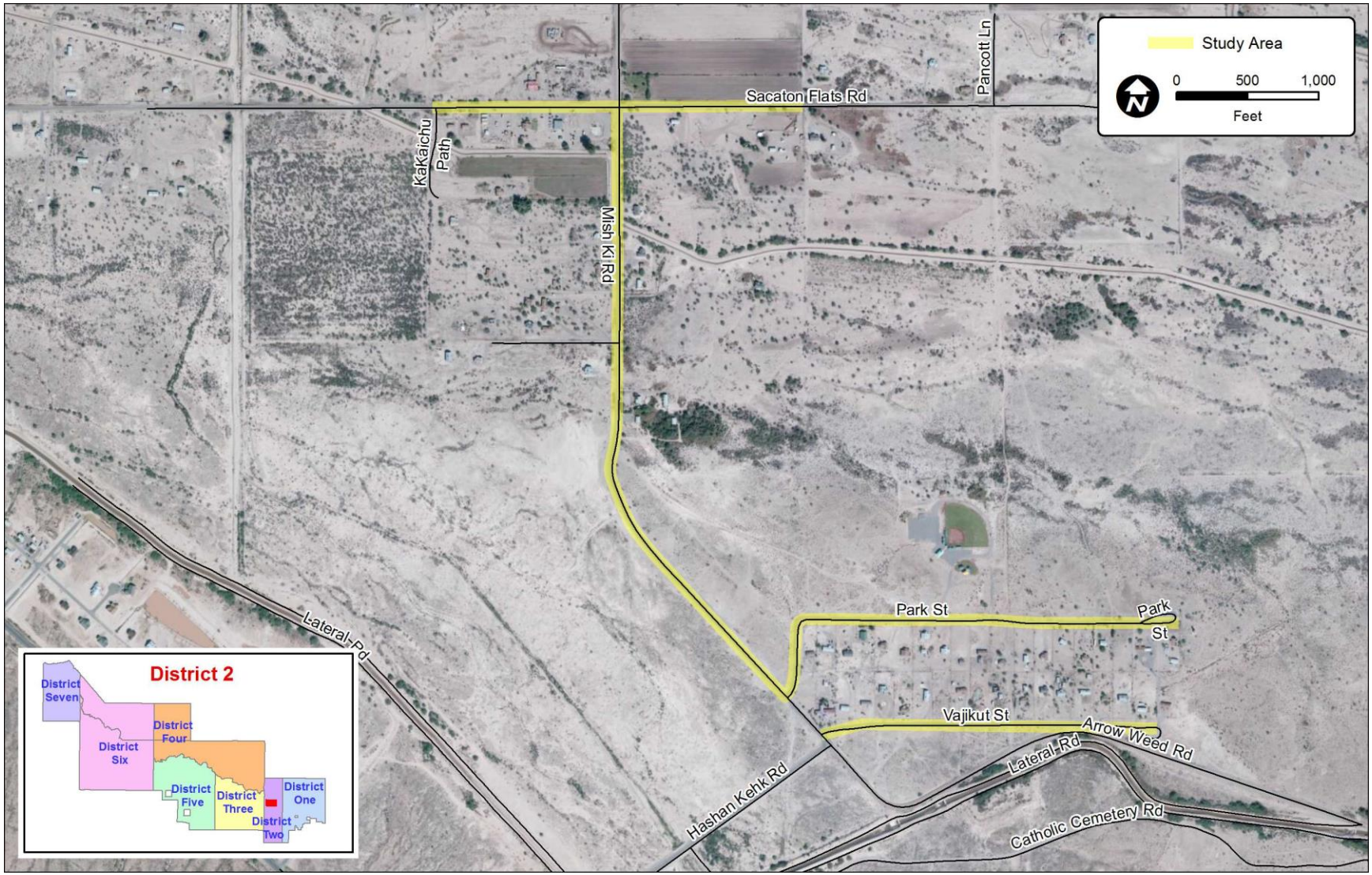


Figure 2-1: District 2 Study Area Roads

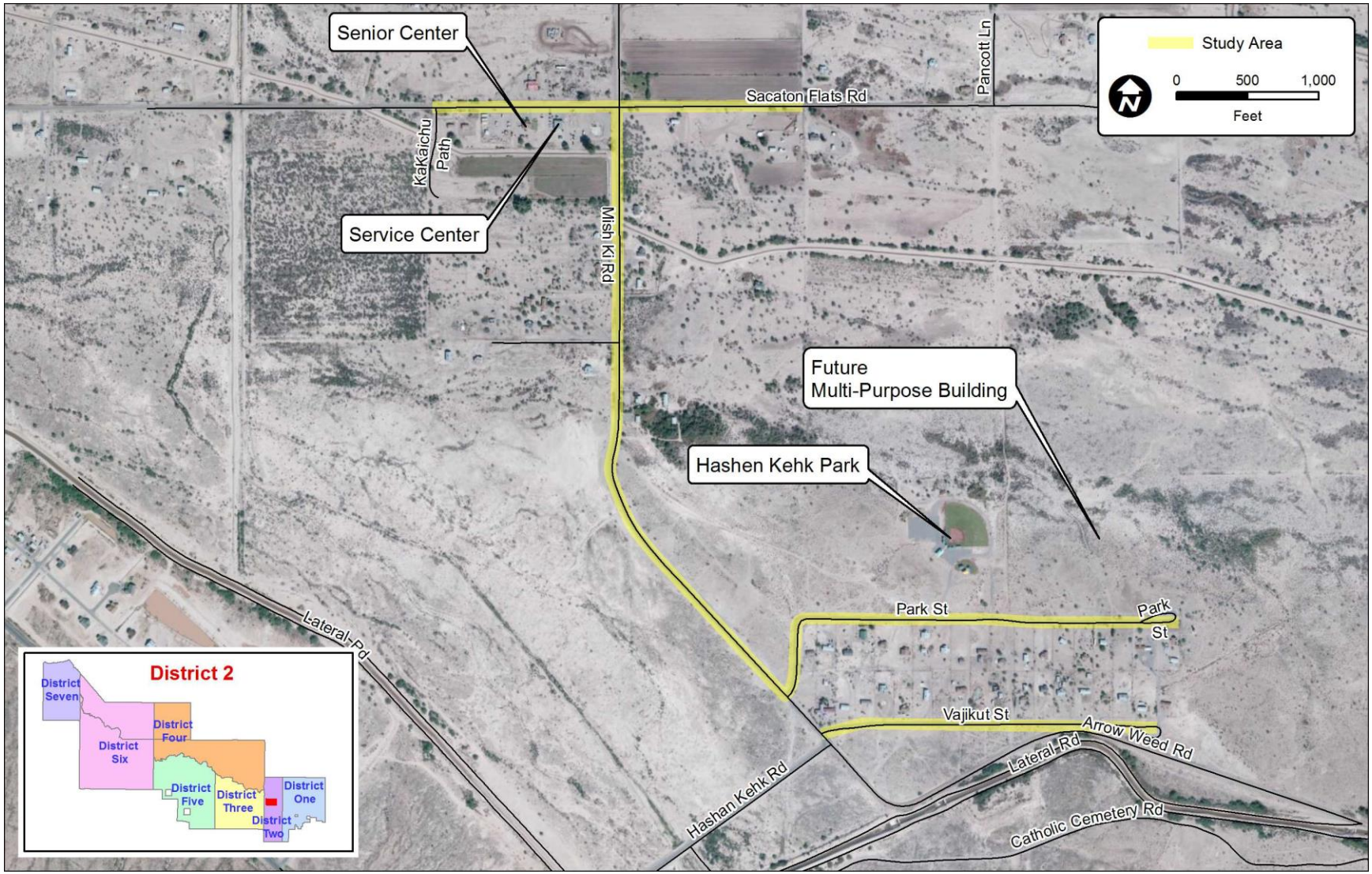


Figure 2-2: District 2 Activity Centers

Two activity centers along **Sacaton Flats Road** include a Senior Center and the District 2 Service Center located at the southwest corner of Indian Route 94 and Mish Ki Road. Low-density residential and agriculture land uses are also located along Sacaton Flats Road.

Mish Ki Road is primarily open space with some low-density residential.

Land use along **Park Street** is low-density residential to the south. North of Park Street, a Multipurpose Center is currently under construction. The new Multipurpose Center is located adjacent to existing ball fields. The Multipurpose Center will include space for District Administrative Services, Community Learning Center, Elderly Center, teen and child activity center, wellness/fitness area, gymnasium and indoor track, and meeting space.

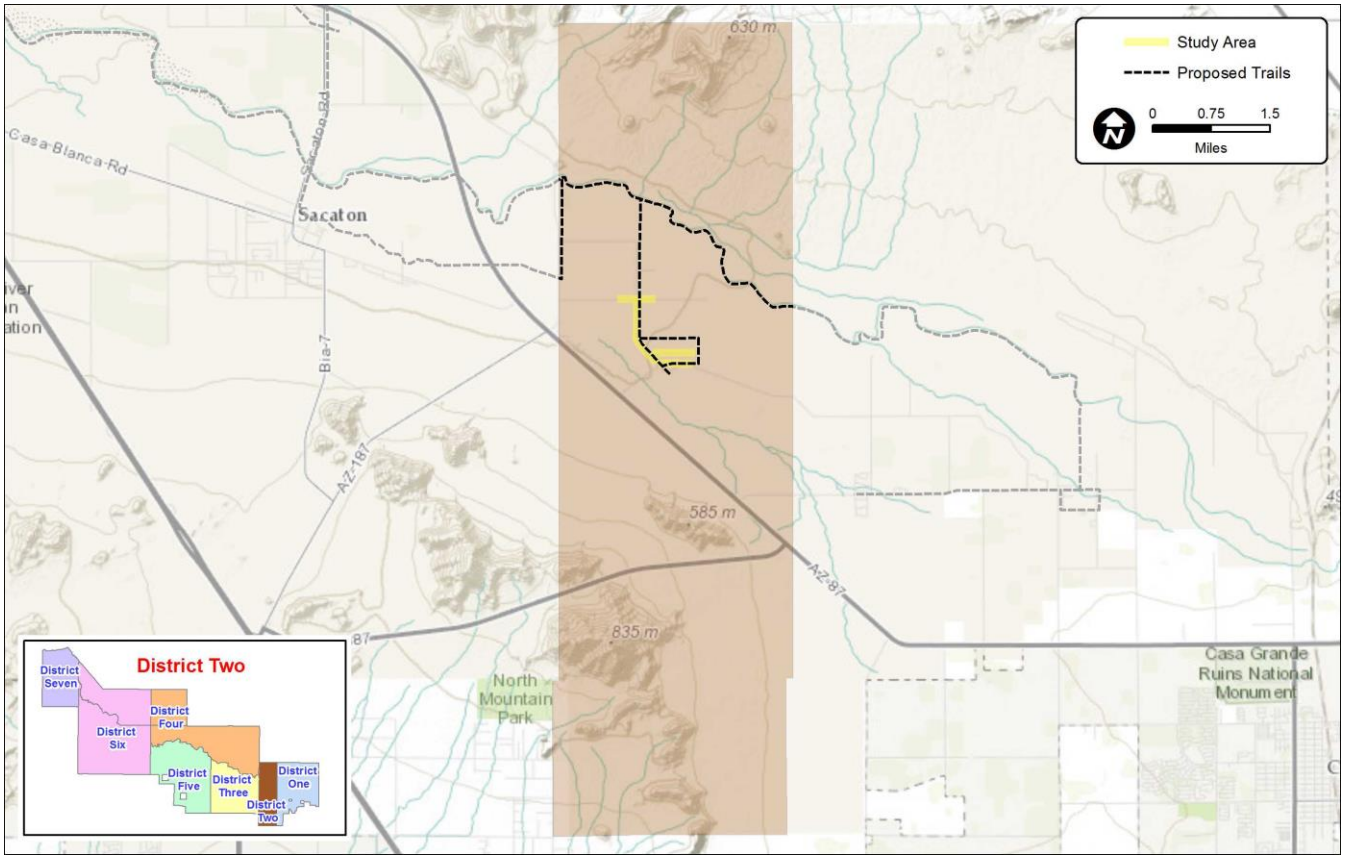
Vajikut Street has residential land use on the north side of the street and vacant land on the south side of the street.

View of Park Street, looking west. Construction of Multipurpose Center seen at right

2.1.3 FUTURE PLANNED LAND USE AND ACTIVITY CENTERS

Construction of the new Multipurpose Center on Park Street will be completed in March 2015. In general, the land use near study area roads is anticipated to remain primarily residential, with public use, parks, and recreation land uses. Residential areas are planned between Sacaton Flats Road and Park Street. A lake is proposed south of the study area.

The District 2 Master Plan recommends implementation of a Reservation-wide trail system. The planned trail system within the District 2 study area includes future trails on Mish Ki Road, Park Street, and Vajikut Street. The planned trail on Mish Ki Road would continue north to the Gila River. The proposed Reservation-wide trail system is shown in **Figure 2-3**.



Source: District 2 Master Plan

Figure 2-3: Proposed Reservation-Wide Trail System in District 2

2.1.4 POPULATION LOCATION IN DISTRICT 2

Population density, according to the 2010 Census, is shown graphically in **Figure 2-4**. The graphic shows the census block boundaries with dashed red lines. In general, there is low population density, with the exception of the residential area between Park Street and Vajikut Street.

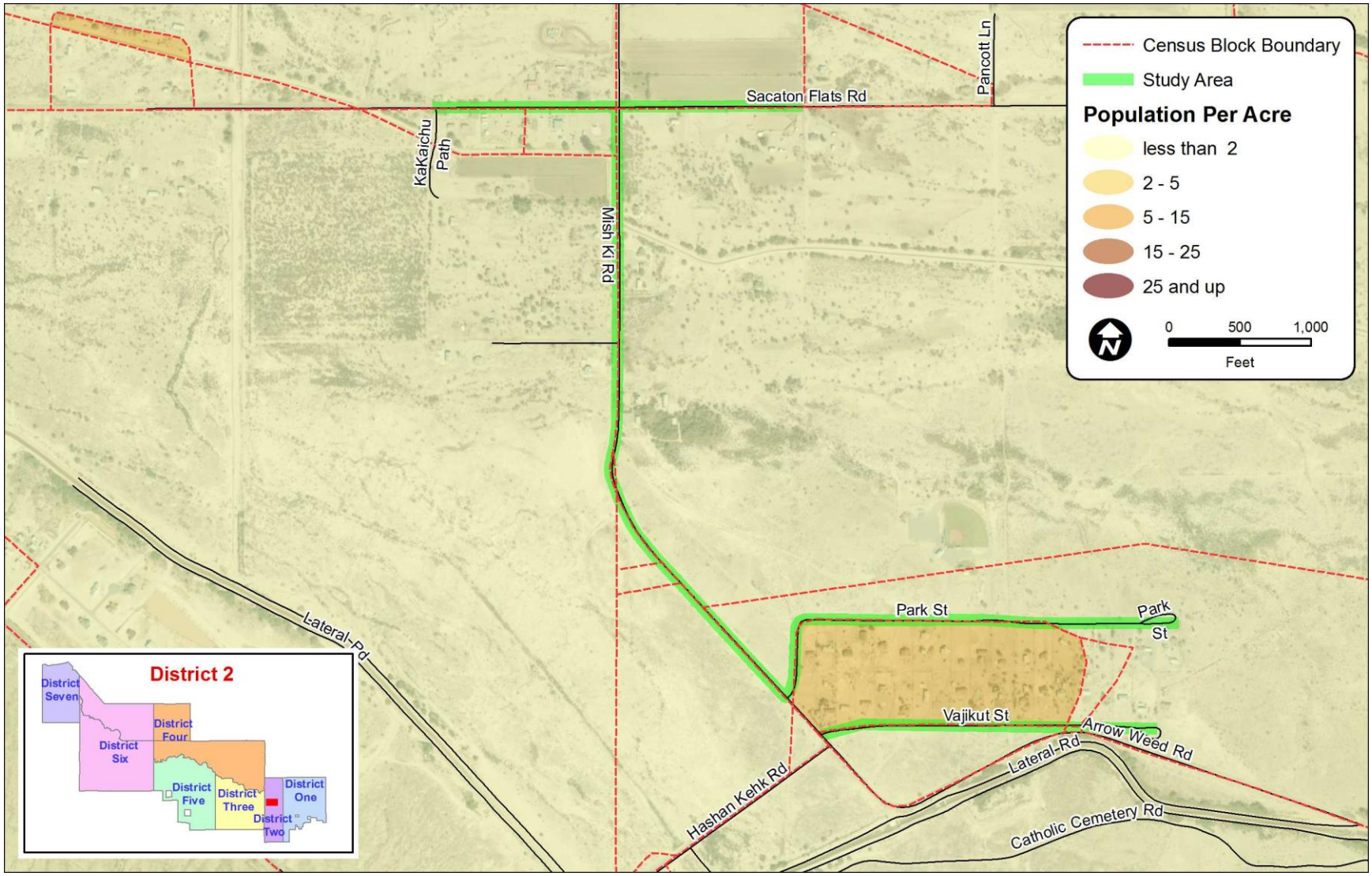


Figure 2-4: District 2 Population Location

2.2 EXISTING TRANSPORTATION CONDITIONS RELATING TO PEDESTRIANS AND BICYCLISTS

2.2.1 EXISTING STREET SYSTEM

Key roads in the study area are described below:

Sacaton Flats Road (Rte 94) is a two-lane paved roadway with a painted edgeline; however, the shoulders are very narrow. Traffic control includes stop signs on the east and west legs of the intersection of Mish Ki Road. Daily traffic volumes were 380 vehicles per day in 2003. It is estimated that 2014 traffic volumes are approximately 500 vehicles per day.

Mish Ki Road (Rte 155) is a two-lane paved road with no shoulders. Traffic volumes were 232 vehicles per day (2003 volumes). It is estimated that 2014 traffic volumes are approximately 350 vehicles per day.

Park Street (Rte 261) is a two-lane gravel road with no shoulders. There are approximately 18 homes on Park Street, indicating approximately 170 trips per day, based on an estimate of daily trips from the Trip Generation Manual (ITE 8th Edition). There is a stop sign at the intersection of Park Street and Mish Ki Road. Once the new District 2 Multipurpose Center opens on this street, it is likely traffic volumes will increase, although the extent of this increase is unknown.

Vajikut Street (Rte 261) is a two-lane paved road with no shoulders. No traffic counts are available on this road; however, the approximately 17 homes on this street indicate approximately 160 trips per day based on an estimate of daily trips from the Trip Generation Manual (ITE 8th Edition). There is a stop sign at the intersection of Vajikut Street and Mish Ki Road.

2.2.2 PEDESTRIAN, BICYCLE, AND VEHICLE COUNTS

Pedestrian, bicycle and vehicle counts were conducted on May 13, 2014 at two locations:

- Mish Ki Road /Sacaton Flats Road
- Hashen Kehk Park Entrance / Park Street

The count data is shown in **Table 2-1**. The counts did not record any pedestrian or bicycle traffic during the 4 p.m. to 6 p.m. time collection period. However, it should be noted that a new District 2 Multipurpose Center will be opening on Park Street in 2015, which will attract more pedestrians and bicyclists to this area.

Table 2-1: 2014 Pedestrian, Bicycle, and Traffic Counts

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND		
Location	**Time period**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**
Mish Ki Rd / Sacaton Flats Road	4-6 p.m.	9	0	0	37	0	0	26	0	0	17	0	0
Hashen Kehk Park Entrance	4-6 p.m.	0	0	0	2	0	0	12	0	0	5	0	0

Source: Traffic Count taken 5/13/2014

2.2.3 LEVEL OF SERVICE

Based on available traffic count data, the planning level of service is in the A-C range on all study area roads.

2.2.4 ACCESS MANAGEMENT

The project team reviewed the number of driveway openings and intersections on each of the study area roads to determine whether there may be opportunities to improve pedestrian safety through access management. A brief overview of access points on each road and access management considerations on each road is provided in **Table 2-2**.

Table 2-2: Access Characteristics on Study Roads

ROAD NAME	NUMBER OF DRIVEWAY OPENINGS	NUMBER OF INTERSECTING STREETS	ISSUES AND OPPORTUNITIES
Sacaton Flats Road	north side 3 driveways south side 9 driveways	1-Mish Ki Road	The majority of the land uses are on the south side of the road. No opportunities to potentially consolidate driveways were observed. The recommended construction of a sidewalk will better define driveway openings.
Mish Ki Road	west side 5 driveways east side 7 driveways	1 - Levee Rd	There is a low driveway density on this road, and no access management strategies were identified in this area.
Park Street	south side 16 driveways	None	Homes are located on the south side of the street. There are a few locations where the earthen driveways are not well defined. When Park Street is paved, these driveways will be better defined, and sidewalks are planned on the south side of the street. There will be more people crossing the street when the Multipurpose Center opens on the north side of the street.
Vajikut St	north side 17 driveways	None	Homes are located on the north side of the street. If access could be obtained it would be desirable to provide a path to connect the east ends of Vajikut Road and Park Street, to provide a shorter walk to the Multipurpose Center currently under construction.

Source: Visual Inspection

2.2.5 ROAD WIDTHS AND RIGHT OF WAY WIDTHS

Current road widths and right of way widths are summarized in **Table 2-3**.

Table 2-3: Roadway and Right-of-Way Widths

ROAD NAME	ROADWAY WIDTH (FEET) *	RIGHT OF WAY WIDTH (FEET)
Sacaton Flats Road (KaKaichu path to Mish Ki Road) Sacaton Flats Rd (Mish Ki Road to Pancott Lane)	24 20	80 0
Mish Ki Road	25	0
Park Street	24	80
Vajikut Street	24	80

Source: Tribal Transportation Inventory and Google Earth measurement

2.2.6 PLANNED ROAD IMPROVEMENT PROJECTS

The Tribal Transportation Improvement Plan includes a project to pave and construct curb, gutter and sidewalk (south side) on Park Street in fiscal year 2014.

The Gila River Indian Community Transportation Study (2011) recommended that Mish Ki Road be reconstructed from Akimel Road to Hashan Kehk Road as a short- or medium-term project. The report added that an optional improvement would be to widen the road to include shoulders. The Transportation Study recommended that Sacaton Flats Road be resurfaced, as a priority project.

2.2.7 FUNCTIONAL CLASSIFICATION

Table 2-4 summarizes the eight (8) BIA roadway functional classifications in the Tribal Transportation Inventory.

Table 2-4: Tribal Transportation Inventory Functional Classification

DISTRICT 2 STUDY AREA ROADS	CLASS	DESCRIPTION
Vajikut Street Park Street	3	Streets that is located within communities serving residential areas.
Sacaton Flats Road Mish Ki Road	5	Rural local road that is either a section line and/or stub type roads, make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. Also included are roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes.

Source: Tribal Transportation Inventory

2.2.8 PAVEMENT CONDITIONS

Pavement conditions for study area roads are summarized in **Table 2-5.** Park Street is planned to be paved over the next year.

Table 2-5: Pavement Conditions

ROAD NAME	ROADBED CONDITION CODE IN THE TRIBAL TRANSPORTATION INVENTORY	DESCRIPTION OF PAVEMENT CONDITIONS, BASED ON REVIEW OF AERIALS	COMMENTS
Sacaton Flats Road (Rte 94)	5- A roadbed constructed to adequate standards with good horizontal and vertical alignment and proper drainage	There is transverse cracking which has been patched.	
Mish Ki Road (Rte 155)	4- A designed and constructed roadbed with some drainage and alignment improvements required.	generally good	
Park Street (Rte 261)	2- Bladed unimproved road, poor drainage, poor alignment	earth road	Park Street is planned to be paved.
Vajikut St (Rte 261)	2- A roadbed constructed to adequate standards with good horizontal and vertical alignment and proper drainage	Earth road	

2.2.9 EXISTING SIDEWALKS AND CROSSWALKS

Currently, District 2 study area roads have no existing pedestrian or bicycle facilities (e.g. sidewalks, bike lanes, or crosswalks). A KaKaichu path at the west end of the study area intersects Sacaton Flats Road on the south. This path leads to homes south of Sacaton Flats Road.

Informal paths visible in aerial photos have the potential to be developed into more formal paths to connect to the new Multipurpose Center.

2.2.10 EXISTING STREET LIGHTING

No street lights are located on any of the study area roads. A number of stakeholders indicated that street lighting is needed.

2.2.11 CRASH DATA

ADOT crash data has been obtained and analyzed for pedestrian and bicycle crashes within the Community. The crash data spanned a five-year period from January 1, 2009 to February 4, 2014. The crash data showed that no pedestrian- or bicycle-related crashes occurred within the District 2 study area. No pedestrian crash data was available from the Gila River Indian Community Police Department,

although discussions with Police Department staff indicate that they submit their crash data to ADOT on a regular basis.

Five vehicular crashes occurred in or near the study area. Three crashes occurred in dark or dusk conditions, and two crashes were run off the road crashes at the Mish Ki Road curve area. There were no reported crashes on Park Street or Vajikut Road.

2.2.12 TRANSIT AND SCHOOL BUS ROUTES AND STOPS

No public transit services are planned at this time for the study area. Discussions with school bus operators indicate that students are picked up typically at or near their homes. Feedback from the Coolidge School District indicated the following needs:

- A general need was more street name signs.
- At Mish Ki Rd and Community Rd (north of the study area) the road slants off and there is not much room for children to wait for the bus.
- At the intersection of Mish Ki Road and Hashen Kehk Road (near Vajikut Road), more room is needed for children to wait.

Although bus stops for schools can change from year to year, some of the Coolidge School District bus stop locations in the study area are:

- Prior to curve area on Mish Ki Road
- Mish Ki Road / Hasken Kehk / Vajikut Road

The Sacaton School District and the Casa Blanca School District has indicated that they only pick up students at their homes.

2.3 DRAINAGE AND ENVIRONMENTAL CONDITIONS

2.3.1 CHARACTERISTICS OF THE PHYSICAL, NATURAL, AND CULTURAL ENVIRONMENTS

Biological Resources

The District 2 study area is within the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community. Based on a review of the U.S. Fish and Wildlife Service Threatened and Endangered Species Natural Resources List and aerial photos, no suitable habitat for threatened or endangered species exists in the study area. However, the study area may provide suitable habitat for two candidate species (Sonoran Desert tortoise and Tucson shovel-nosed snake). If there is a federal nexus (federal funding, Section 404 permitting, etc.) then improvements identified in this study will require a biological evaluation by a qualified biologist during the environmental clearance process.

Section 404/401 of the Clean Water Act

Based on the review of aerial photography, there are no natural washes that could be considered Waters of the United States under the jurisdiction of the U.S. Army Corps of Engineers within the study area. There is a man-made ditch that appears to be utilized for irrigation purposes that should not be considered a Waters of the United States; however, as improvements are designed, this should be reconfirmed.

Hazardous Materials

The United States Environmental Protection Agency Envirofacts website has been reviewed for Environmental Protection Agency-regulated facilities in the study area. There are no facilities within the study area and the facilities in the vicinity of the study area are 1) of sufficient distance and/or down-gradient from the project area as to not pose an environmental concern; 2) do not have violations; or 3) have completed remediation/compliance.

Cultural Resources

Five previous archaeological surveys have been conducted within the study area. The entire area has been surveyed with the exception of 3.35 acres along Sacaton Flats Road and Mish Ki Road and three archaeological sites have been recorded. Additional survey of the 3.35 acres that have not previously been surveyed and consultation with the Gila River Indian Community will need to occur when an individual project is at the 30% design plan stage in this area.

2.3.2 DRAINAGE ISSUES AND FLOODING

Drainage infrastructure in the study area is shown in **Figure 2-5**. It should be noted that flooding, ponding, and sheet flows is a natural occurrence during every rain storm, and is a major problem for the walking community and especially those that do not have alternative transportation.

A brief overview of drainage conditions on study area roads is provided as follows.

Sacaton Flats Road (IR 94) is a two-lane paved roadway with no curb and gutter or sidewalks on either side of the road. Minor graded ditches or swales are located on the either side of the roadway. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. There are no known drainage culvert crossings of Sacaton Flats Road. One irrigation canal culvert crossing is located at the western end of the road.

Mish Ki Road (IR 155) is a two-lane paved road with no shoulders, curb and gutter, or sidewalks on either side of the road. Minor graded ditches or swales are located on either side of the roadway. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed to have occurred on the pavement either from local drainage or windblown sources. There are several culvert crossings of Mish Ki Road. These culverts handle minor drainage flows originating from offsite (non-pavement drainage).

Park Street is a two-lane, at-grade gravel road with no shoulders, curb and gutter, or sidewalks on either side of the road. Very minor graded ditches or swales are located on either side of the roadway, but at limited locations. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. There are several culvert crossings of Park Street as depicted in **Figure 2-5**. These culverts handle minor drainage flows originating from off-site (non-pavement drainage).

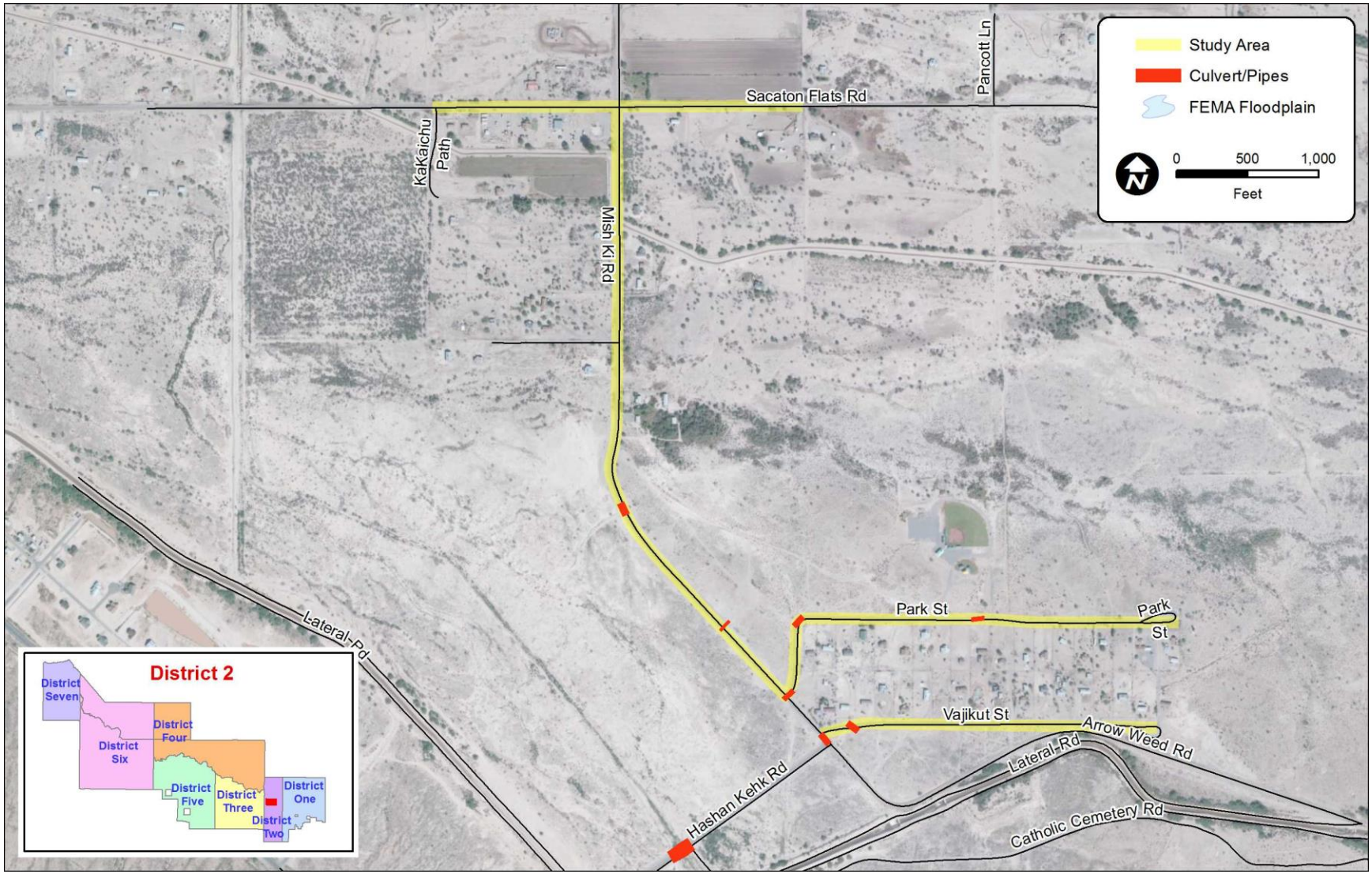


Figure 2-5: District 2 Drainage Infrastructure

2.4 SUMMARY OF PEDESTRIAN SAFETY NEEDS IN DISTRICT 2

Key pedestrian safety needs are shown graphically in **Figure 2-6**. Pedestrian safety needs were identified through a process which includes extensive public outreach, input from stakeholders, analysis of crash data and road conditions, and analysis of how pedestrian facilities will link residents to activity centers such as schools, parks, and Multipurpose Centers and Service Centers.

Currently residents must walk on the roads because there are limited or no shoulders, sidewalks, or paths. When the new District 2 Multipurpose Center opens on Park Street, more people will be walking to this major destination. Needs identified include the following:

Mish Ki Road

- Provide a sidewalk or trail connection along Mish Ki Road.
- Provide street lighting on Mish Ki Road.
- Provide traffic calming on Mish Ki Road.

Park Street

- Provide sidewalks and street lighting on Park Street, in conjunction with paving.
- Provide crosswalks to new Multipurpose Center and to adjacent ball fields.
- Stripe shoulder for bicycle lane.

Park Street looking east. Note the lack of walking or biking areas adjacent to the road.

Vajikut Street

- Provide sidewalks and street lighting on Vajikut Street in conjunction with paving.
- Stripe shoulder for bicycle lane.

Sacaton Flats Road

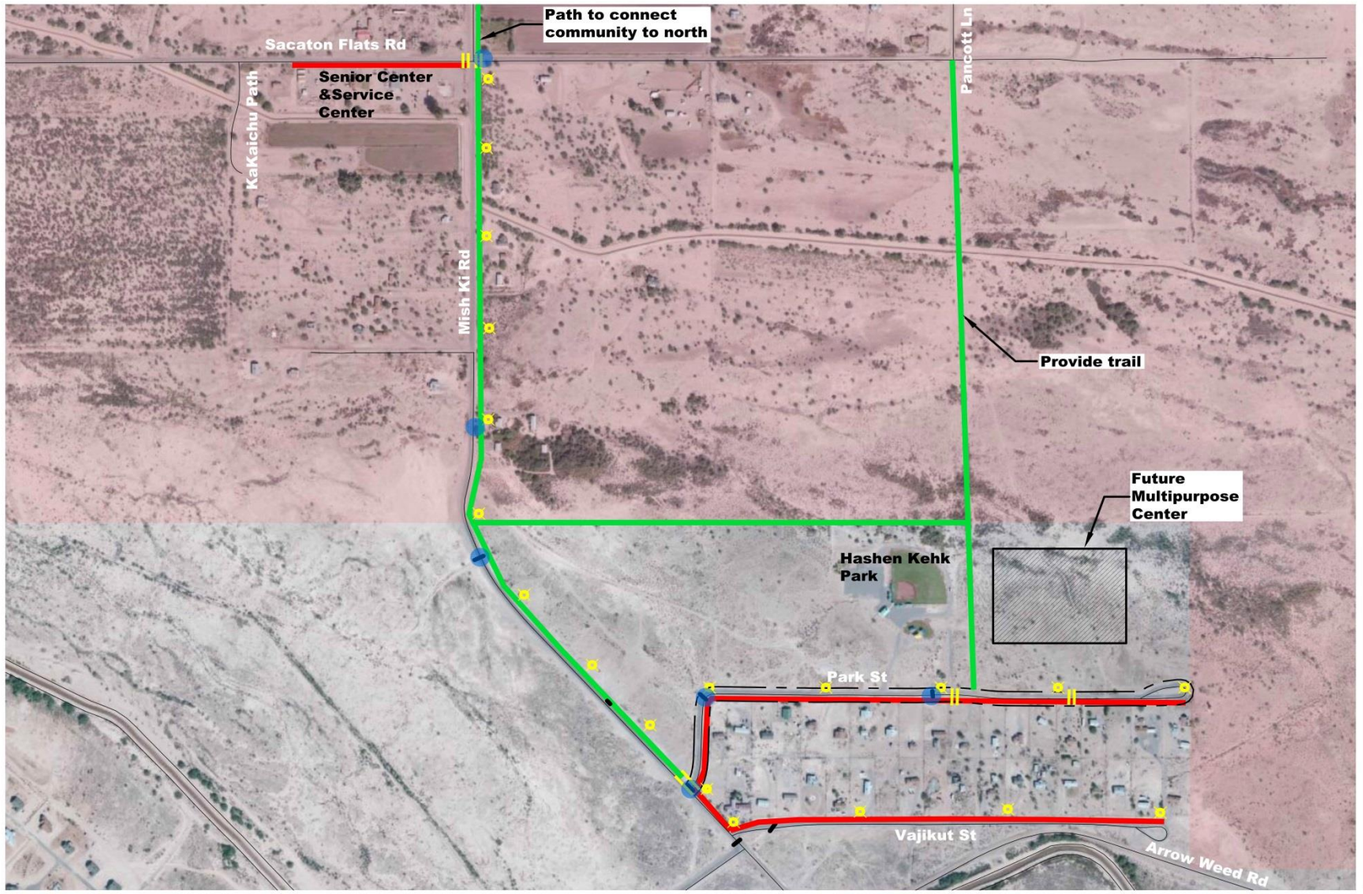
- Provide sidewalk connections to the District Service Center and Senior Center.
- Stripe crosswalks at intersection with Mish Ki Road.

Drainage improvements

- Need for curb and gutter at new sidewalk locations to keep pavement drainage off sidewalks.
- Need for new or improved culvert locations at cross drainages and at existing locations to improve the drainage crossings so that pedestrians can walk more easily.

Other

- Provide a trail using an east-west alignment between Mish Ki Road and the Pancott Lane alignment.
- Provide a trail to connect Sacaton Flats Road to Park Street, using a Pancott Lane alignment (however, this alignment is not preferred by the Gila River Indian Community Department of Transportation).



District 2 Study Area

Figure 2-6: District 2 Pedestrian Needs

2.5 RECOMMENDED IMPROVEMENTS TO MEET IDENTIFIED NEEDS

A program of improvements has been developed to address pedestrian safety needs. An overview of the improvement projects is presented in **Figure 2-7.** Following this table are project information sheets describing recommended improvement projects on each roadway. These improvement projects are summarized in **Table 2-6.** It should be noted that a summary of recommended drainage improvements is provided in **Appendix B**. This Appendix also provides maps of the drainage improvements.

2.5.1 STUDENT PEDESTRIAN SAFETY

One emphasis of the study has been the identification of pedestrian safety improvements to enhance safety for school children. This included investigating potential improvements for school bus stop locations, based on discussions with school transportation providers and the Tribal Youth Council. One potential location for a school bus stop has been identified at the Mish Ki Road/Vajikut Street/Hashen Kehk intersection. More coordination is needed with school districts to verify if this is a long term school bus stop location. However, the recommended improvements will make it safer for school children, as well as the general public, to walk within the Community, and will provide improved access to the Multipurpose Center.

2.5.2 ACCESS MANAGEMENT TECHNIQUES FOR PEDESTRIAN SAFETY

As further development occurs in the Community, access management techniques can be used to help improve pedestrian safety. Examples of access management techniques are:

- Reducing the number of driveways, within a given distance (per block or mile) through provisions of frontage roads and closing multiple driveways that serve one location.
- Providing greater separation between driveways.
- Providing a safe refuge for pedestrian crossings with raised medians.
- Providing right-turn lanes for high-volume driveways.
- Constructing a landscaped or other clearly marked buffer helps to visually define sidewalk and driveway locations.
- Providing a clear zone free of visual obstructions such as signs, large trees and bushes, or parked vehicles, which will allow pedestrians to be seen by drivers and to see oncoming vehicles.

An access management opportunity identified is an access path to connect Vajikut Road and Park Street at the east end of those streets in order to provide a shorter walk to the Multipurpose Center currently under construction. This improvement project has been incorporated into the plan.

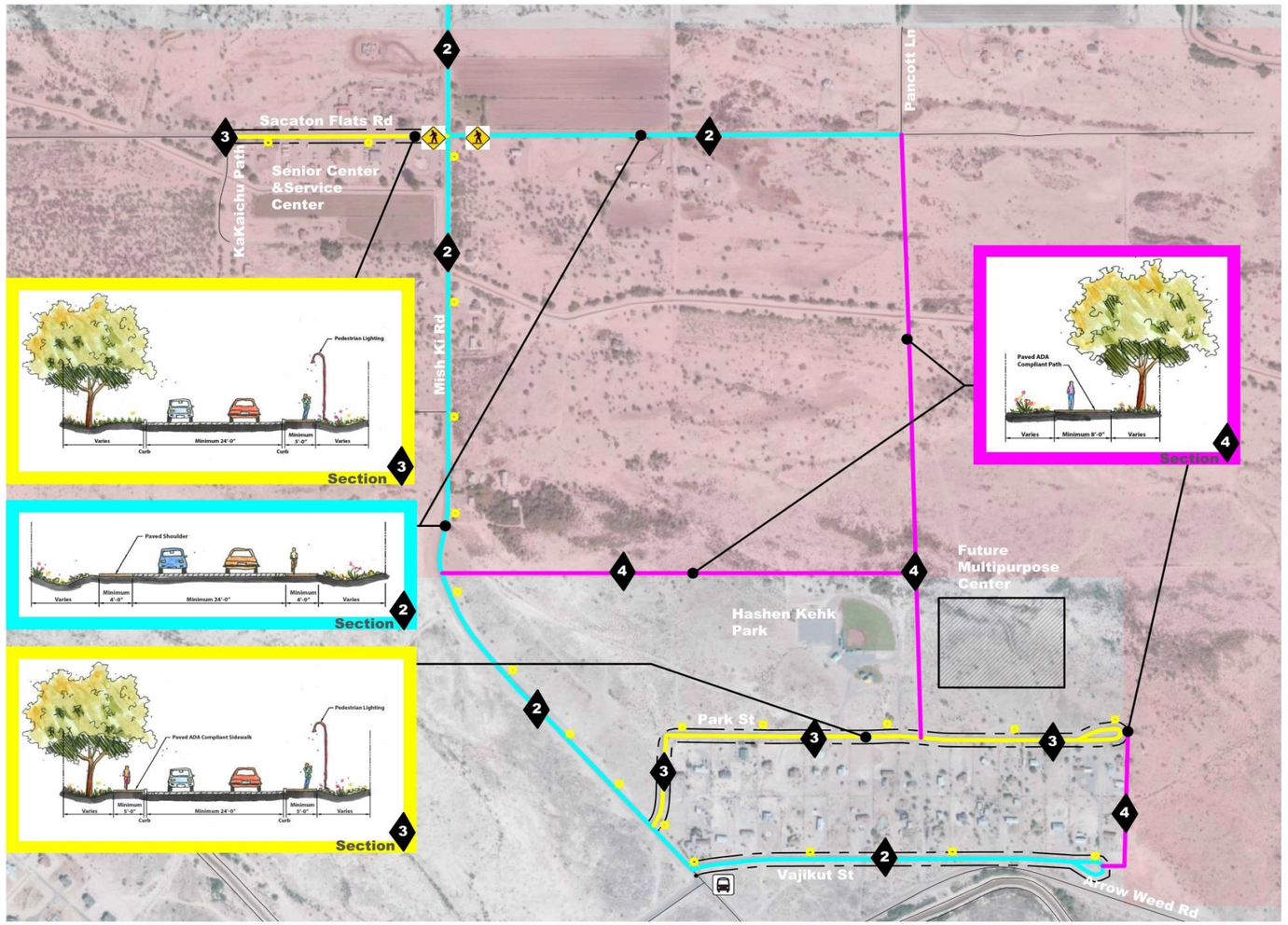


Figure 2-7: District 2 Recommended Pedestrian Safety Improvements

Table 2-6: District 2 Recommended Pedestrian Safety Improvement Projects

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Mish Ki Road (Rte155)				
Construct paved shoulder on both sides of the road.	Vajikut Road to Community Road	1.32	270,000	Costs assume grading, asphaltic base and asphaltic concrete, drainage improvements, and miscellaneous signing. Constraints include right-of-way availability (there is none) and the high culturally sensitivity of the area, making this a relatively low priority project. Drainage improvements include two pipes replaced and relocated to northeast to accommodate ditch, and one pipe extended beyond the new shoulder. A new drainage pipe and ditch is recommended to provide improved drainage.
Construct street lighting	Vajikut Road to Sacaton Flats Road	0.94	410,000	Cost assumes solar lighting at 200-foot spacing.
Sacaton Flats Road (Rte 94)				
Construct sidewalk on south side of road, between KaKaichu Path and Mish Ki Road	KaKaichu Path to Mish Ki Road	0.25	Asphalt – 110,000 Concrete – 155,000	Cost includes sidewalk paving option (asphalt or concrete), and miscellaneous signing. A new drainage pipe is recommended to provide improved drainage.
Construct shoulders between Mish Ki Road and Pancott Lane	Mish Ki Road and Pancott Lane	0.50	Asphalt – 95,000 Concrete – 195,000	No right-of-way is available east of Mish Ki Road
Install crosswalks at stop signs at Mish Ki Road	Sacaton Flats Road/ Mish Ki Road	N/A	1,000	
Construct street lighting	KaKaichu Path to Mish Ki Road	0.25	85,000	Cost assumes solar lighting at 200-foot spacing.

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Park Street (Rte 261)				
Construct sidewalk with curb and gutter on both sides of the street	Mish Ki Road to east terminus	0.57	Asphalt – 490,000 Concrete – 625,000	Cost includes grading, two drainage pipe extensions, sidewalk, and miscellaneous signing and striping. Sidewalks are planned on the south side of the street when the road is paved. Sidewalks on the north side of the street may be a future project depending on pedestrian demand when the Multipurpose Center opens. Stripe a shoulder area on one or both sides of the road for a bicycle lane, when the road is paved. Stripe a shoulder area on one or both sides of the road for a bicycle lane, when the road is paved.
Construct street lights	Mish Ki Road to east terminus	0.57	190,000	Cost assumes solar lighting at 200-foot spacing.
Vajikut Street (Rte 261)				
Construct paved shoulders on both sides of street	Mish Ki Road to east terminus	0.49	85,000	Cost includes shoulder construction and one drainage pipe extension. Stripe shoulder for bicycle lane.
Construct street lights	Toki Road to Shegoi Road	0.25	140,000	Cost assumes solar lighting at 200-foot spacing.
Construct bus pad	Mish Ki Road/Vajikut Street/Hashen Kehk Intersection	N/A	3,000	This project will require further coordination with District 2 and area schools. Right-of-way will be needed to place the pad, which is assumed to be 200 square feet. This is a District focused project.

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Construct bus shelter	Mish Ki Road/Vajikut Street/Hashen Kehk Intersection	N/A	8,000	This project will require further coordination with area schools. This is a District focused project.
Construct path between Vajikut Street and Park Street	A north-south path between Vajikut Street and Park Street (assumed to be at the east end of both streets)	0.13	Stabilized decomposed granite – 15,000 Asphalt – 25,000 Concrete – 65,000	This project will likely need right-of-way acquisition with allotted lands.
Other Projects				
Pancott Lane path from Sacaton Flats Road to Park Street	Pancott Lane alignment	0.70	Stabilized decomposed granite – 65,000 Asphalt –110,000 Concrete – 318,000	The cost estimate includes path construction option (stabilized decomposed granite, asphalt or concrete), and miscellaneous signing. The cost estimate does not include a canal crossing, or right-of-way. Implementation issues include location on allotted lands and a canal crossing.
East-west path from Mish Ki Road to Pancott Lane	Specific alignment to be determined based on further study.	0.52	Stabilized decomposed granite – 50,000 Asphalt – 85,000 Concrete – 240,000	The cost estimate includes grading, path construction option (stabilized decomposed granite, asphalt or concrete), and miscellaneous signing. The cost estimate does not include right-of-way.

*Note: costs are based on 2014 estimated costs and include a 30% contingency to account for mobilization (8%), miscellaneous work (12%), construction surveying and layout (2%), erosion control (1%), contractor quality control (2%), furnish water supply (1%), and maintenance and protection of traffic (4%). See **Appendix B** for further information regarding recommended drainage improvements.

Project Information Sheet - Mish Ki Road (Rte 155)

Project Name	Mish Ki Road Pedestrian Safety Improvements		
Project Location	Mish Ki Road, Vajikut Road to Community Road (1.32 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Paths: Provide a paved shoulder on both sides of the road.		
	Drainage Improvements: Drainage improvements include two pipes replaced and relocated to northeast to accommodate ditch, and one pipe extended beyond the new shoulder. A new pipe and ditch is recommended to provide positive drainage.		
	Lighting Construct solar street lighting		
Project Justification	Mish Ki Road is a rural local road, which serves to link residences to the District Service Center on Sacaton Flats Road and will serve as a key access road to the new Multipurpose Center on Park Street.		
Cost Estimate	See Table 2-6		
Potential Funding Sources	Tribal Transportation Program; Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	North of the curve area, right-of-way is surrounded by allotted land. There is limited right-of-way and high cultural sensitivity in this area.		

Mish Ki Road looking north from Vajikut Street

Project Information Sheet - Sacaton Flats Road (Rte 94)

Project Name	Sacaton Flats Road Pedestrian Safety Improvements		
Project Location	Sacaton Flats Road – KaKaichu Path to Pancott Lane (0. 75 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Paths: Construct a sidewalk with curbs on the south side of the street, between KaKaichu Path and Mish Ki Road. Construct shoulders between Mish Ki Road and Pancott Lane.		
	Drainage A new drainage pipe is recommended to provide positive drainage.		
	Street Lighting Construct solar street lighting KaKaichu Path to Mish Ki Road (0.25 miles).		
	Crosswalks: Stripe north-south crosswalk at Mish Ki Road.		
Project Justification	Sacaton Flats Road is a rural local road which serves the District 2 Service Center. Providing a sidewalk or shoulders will make it easier for walkers to travel to the District 2 Service Center.		
Cost Estimate	Table 2-6		
Potential Funding Sources	Tribal Transportation Program; Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments			

Sacaton Flats Road, looking west from Mish Ki Road

Project Information Sheet - Park Street (Rte 261)

Project Name	Park Street Pedestrian Safety Improvements		
Project Location	Park Street - Mish Ki Road to east end of Park Street (0.57 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Paths: Construct a sidewalk with curbs on both sides of the street. Currently sidewalks are planned to be constructed on the south side of the street as part of the Park Street paving project.		
	Drainage Improvements: Two drainage pipe extensions.		
	Lighting Construct solar street lighting.		
	Traffic Calming: Consider constructing speed tables on Park Street if speeding is an issue when the Multipurpose Center opens.		
Project Justification	Park Street is a residential street will provide access to the new District 2 Multipurpose Center which is currently under construction. It will attract more pedestrian trips to the Multipurpose Center as well as to the Hashen Kehk Park adjacent to the District 2 Multipurpose Center.		
Cost Estimate	Table 2-6		
Potential Funding Sources	Tribal Transportation Program; Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	Park Street is planned to be paved in the Tribal Transportation Improvement Program; a sidewalk is planned on the south side of the road. A future project can be provision of sidewalk on the north side to serve the Multipurpose Center and park. There are also drainage issues on this road.		

Park Street looking west, construction of Multipurpose Center at right of photo

Project Information Sheet - Vajikut Street (Rte 261)

Project Name	Vajikut Street Road Pedestrian Safety Improvements		
Project Location	Vajikut Street, Mish Ki Road to east end of Vajikut Street (0.49 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☐	Gravel ☒	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Paths: Construct a paved shoulder on both sides of the road.		
	Drainage Improvements: One drainage pipe extension.		
	Lighting: Provide lighting at the intersection of Vajikut Road and Mish Ki Road.		
	School-related Pedestrian Improvements Construct a bus pad and shelter in the area near Mish Ki Road / Vajikut Road/ Hashen Kehk Road.		
Project Justification	Vajikut Street is a residential street which carries less than 200 vehicles per day. Homes are located on the north side of the street. Shoulders will provide an area for residents to walk and bike.		
Cost Estimate	See Table 2-6		
Potential Funding Sources	Tribal Transportation Program; Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	Path connecting east end of Vajikut Street and Park Street will require an easement through allotted lands. Coordinate with area schools, such as Coolidge High School, on school bus stop location.		

Vajikut Street looking east

Project Information Sheet - Pancott Road Alignment

Project Name	Pancott Lane Path		
Project Location	Pancott Path, Sacaton Flats Road to Park Street, Path Alignment and Construction (0.7 miles)		
Roadway Ownership	Bureau of Indian Affairs ☐	Tribal ☒	Allotted land ☒
Street Surface	Paved ☐	Gravel ☐	Dirt ☒
Project Description	**Project Components**		
	Multiuse path: Evaluate alignment and construct a multiuse path or trail to connect Sacaton Flats Road to Park Street, using alignment at Pancott Lane		
	Drainage Improvements: To be determined.		
	Lighting: Path lighting.		
	Crosswalks: Not applicable.		
	Traffic Calming: Not applicable.		
Project Justification	A trail on the Pancott Road alignment will provide access to the new District 2 Multipurpose Center, which is currently under construction. Currently the path is used as an informal path.		
Cost Estimate	See Table 2-6		
Potential Funding Sources	Transportation Alternatives Program		
Comments	North of the Hashen Kehk Park the trail alignment would be on allotted lands. This trail would also require a canal crossing. The Gila River Indian Community Department of Transportation recommends an east-west path connection (shown on page 72).		

Pancott Lane Path Alignment

Project Information Sheet – East-West Path, Mish Ki Road to Pancott Lane

Project Name	**East-west Path, Mish Ki Road to Pancott Lane**		
Project Location	East-west path, Mish Ki Road to Pancott Lane (0.52 miles).		
Roadway Ownership	Bureau of Indian Affairs ☐	Tribal ☒	Allotted land ☒
Street Surface	Paved ☐	Gravel ☐	Dirt ☒
Project Description	**Project Components**		
	Multiuse path: Evaluate alignment and construct a multiuse path or trail to connect Mish Ki Road to the Multipurpose Center.		
	Drainage Improvements: To be determined.		
	Lighting: Path lighting.		
	Crosswalks: Not applicable.		
	Traffic Calming: Not applicable.		
Project Justification	A trail from Mish Ki Road to Pancott Lane will provide access to the Multipurpose Center and Hashen Kehk Park for residents to the west. Currently the path is used as an informally.		
Cost Estimate	See Table 2-6		
Potential Funding Sources	Transportation Alternatives Program		
Comments	This alignment border allotted lands, and a more detailed cultural resource assessment would need to be conducted. Specific location to be determined.		

East-West Path Alignment

2.6 IMPROVEMENT PROJECT PRIORITIZATION

The transportation improvement projects will address critical pedestrian and bicycle needs.
A matrix has been developed to assign the priorities for various improvement project elements into short, mid- or long range time frames. The prioritization is summarized in **Table 2-7**. However, as funding becomes available, or priorities change, these projects can be re-prioritized.

Table 2-7: District 2 Pedestrian Safety Improvements Prioritization

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Mish Ki Road (BIA Rte 155), Vajikut Street to Community Road																		
Construct a paved shoulder	3	2	0	2	2	1	2	2	2	2	2	2	2	0	1	25	Mid	Constraints include potential impacts to culturally significant lands and right-of-way.
Install solar street lighting	3	2	0	2	2	1	2	2	1	2	2	2	2	0	1	24	Long	
Sacaton Flats Road (BIA Rte 94), Ka Kaichu Path to Pancott Lane																		
Construct sidewalk with curbs and shoulders, Ka Kaichu Path to Mish Ki Rd	3	2	0	2	3	2	2	2	2	2	2	2	2	0	1	27	Mid	
Construct shoulders, Mish Ki Rd to Pancott Lane	3	2	0	2	3	2	2	2	2	2	2	2	2	0	1	27	Mid	
Install solar street lighting	3	2	0	2	3	2	2	2	1	2	2	2	2	0	1	26	Mid	
Install crosswalk at Mish Ki Road	3	2	0	2	3	5	2	2	1	2	2	2	2	5	1	34	Short	

STREET NAME / PROJECT	PRIORITIZATION CRITERIA: SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Park Street (Rte-261), Mish Ki Road to east terminus of street																		
Construct sidewalk with curb and gutter, both sides of street	3	2	0	1	2	1	2	2	2	2	2	2	2	0	2	25	Short (south side sidewalks) Mid (north side sidewalks) .	Sidewalks on south side will be part of Park Street paving project (Currently in the TIP[1]).
Install solar street lighting	3	2	0	1	2	1	2	2	1	2	2	2	2	0	2	24	Long	
Vajikut Street (Rte261), Mish Ki Road to east terminus of road																		
Construct a paved shoulder	3	2	0	1	1	2	2	2	2	2	2	1	2	0	1	23	Long	
Install solar street lighting	3	2	0	1	1	1	2	2	1	2	2	2	2	0	1	22	Long	
Bus pad and shelter	3	2	0	1	1	3	2	2	2	2	2	2	2	5	1	30	Short	
Construct a path between Vajikut Road and Mish Ki Road	3	2	0	1	1	3	2	2	2	2	2	2	2	0	1	25	Mid	Will likely require right-of-way.
Other Projects																		
Pancott Lane Path	3	2	0	1	1	1	2	2	1	1	2	2	2	0	1	21	Long	Constraints include canal crossing and allotted lands.

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
East west Path, Mish Ki Road to Pancott Lane	3	2	0	1	1	1	2	2	1	1	2	2	2	0	1	21	Long	Potential impacts to culturally significant lands.

[1] TIP=Transportation Improvement Program

3 District 3

3.1 DISTRICT 3 STUDY AREA AND OVERVIEW

District 3 is located in the southern region of the Community nestled among District 2, 4, and 5 with the Sacaton Mountains making up the southern boundary. District 3 is also named Ge e Ke or "Big House" and is the unofficial capital of the Gila River Indian Community. District 3 has the largest population despite being one of the smallest Districts at approximately 41 square miles.

The study area is located in the northern portion of District 3 in the Town of Sacaton. The study area includes the following BIA routes:

- Casa Blanca Road (Rte 1)
- Sacaton Road(Rte 1)
- Seed Farm Road (Rte 24)
- Cholla Road (Rte 139)

Needs on other nearby facilities were also included in this study, where identified. Study area roads are shown in **Figure 3-1.**

3.1.1 DISTRICT 3 MASTER PLAN

The District 3 Master Plan has been used to help guide the development of pedestrian safety projects. Key objectives relating to the development of a safe pedestrian and bicycle environment include the following:

- Establish a network of sidewalks and/or pathways that connect public facilities specifically along Seed Farm Road, Cholla Road, Sacaton Road, and throughout historic downtown Sacaton.
- Establish a network of sidewalks and/or pathways that connect the District Service Center, residential neighborhoods, and transit stops.
- Develop a multi-use trail program (hike, bike, equestrian, etc.) to connect recreational facilities with major District activity centers.
- Promote pedestrian safety by providing low-level lighting along sidewalks, specifically in neighborhoods, historic downtown Sacaton, and the District Service Center.
- Utilize striping and signage to designate bike lanes on existing roadways as appropriate.
- Provide covered shelters (shade and seating) at designated transit and school bus stops for rider safety and comfort.

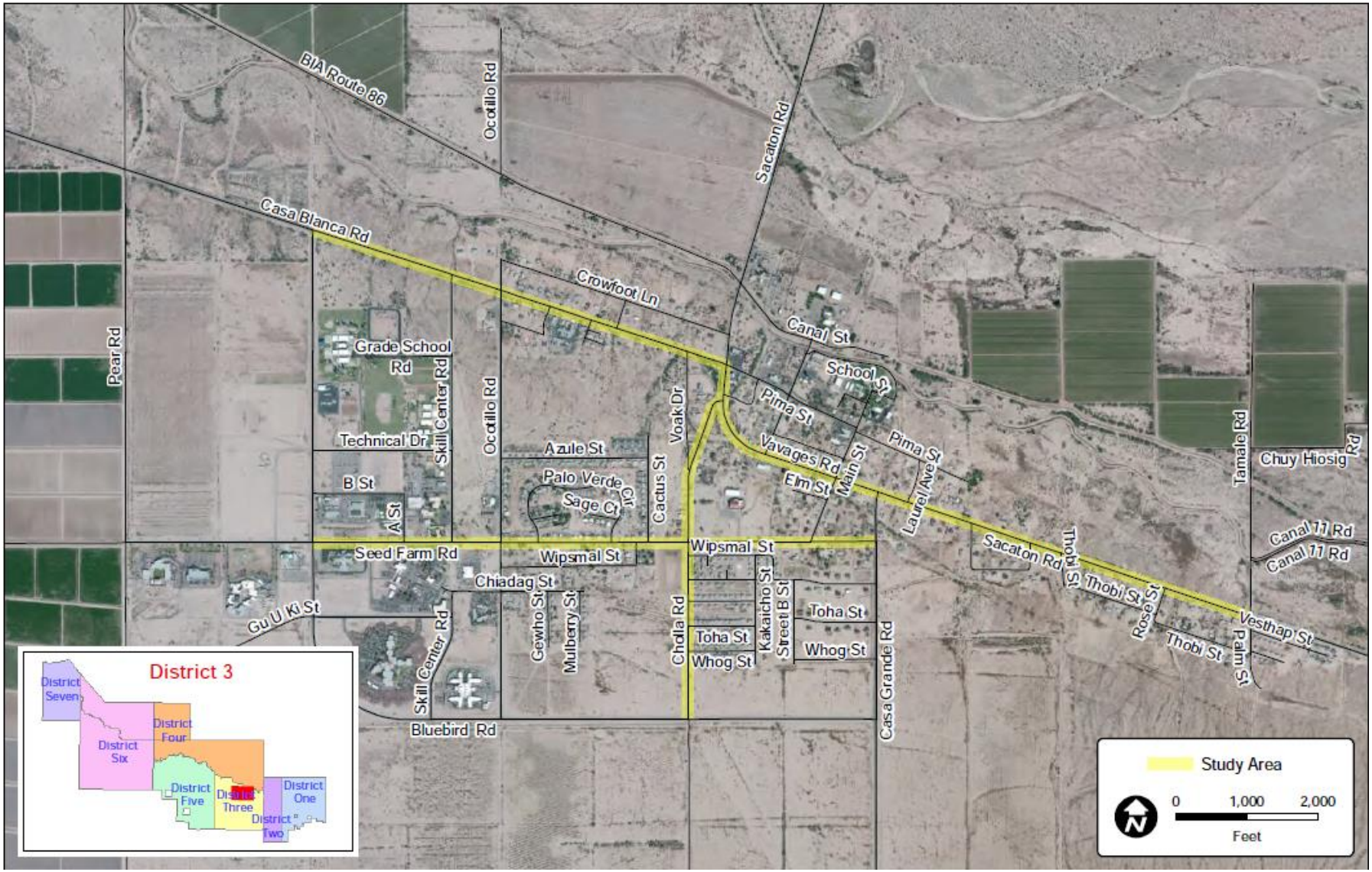


Figure 3-1: District 3 Study Area Roads

3.1.2 EXISTING LAND USE AND ACTIVITY CENTERS

District 3 and the surrounding vicinity have variety of land uses and activity centers. Key activity centers are shown in **Figure 3-2**.

Land uses around **Seed Farm Road** include numerous public and Community services including the Gila River Indian Community Police Station, the Gila River Indian Community Fire Station, the Hu Hu Kam Memorial Hospital, a Head Start facility, and the Boys and Girls Club of Sacaton. Residential land uses are located on Seed Farm Road between Ocotillo Drive and Casa Grande Road.

Cholla Road is primarily residential, but the Head Start facility mentioned above is located at the northeast corner of Seed Farm Road and Cholla Road.

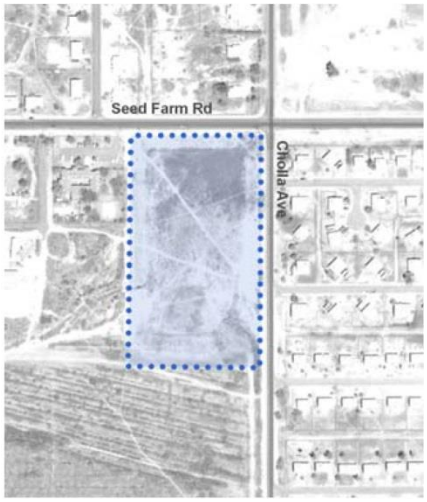
Casa Blanca Road between Bluebird Road and Casa Blanca Road has residential land uses as well as Tribal offices located at 291 West Casa Blanca Road, which include the Department of Land Use, Planning and Zoning and the Department of Transportation. The Ira Hayes Veterans Memorial Park is located at the southwest corner of the intersection of Casa Blanca Road, Sacaton Road, and Pima Street. Other land uses at this intersection include a gas station on the southeast corner and commercial and government offices on the northeast corner.

Sacaton Road between Casa Blanca Road and Thobi Street has primarily residential land uses; however, St. Anthony's Mission is located at the intersection of Church Street and Sacaton Road.

3.1.3 FUTURE PLANNED LAND USE AND ACTIVITY CENTERS

Park and trail projects that were noted in the *District 3 Master Plan* that may have relevance to pedestrian and bicycle travel in the study area are:

- Seed Farm and Cholla Road Retention Basin Park: This project involves reengineering and redesign of the existing retention basin on the southwest corner of Seed Farm Road and Cholla Road to be utilized as a new neighborhood park. This project entails re-grading of the basin to make it multilevel to create a raised pad for playground and park facilities, installing necessary lighting for both the park and the adjacent streets and landscaping, and constructing street improvements. The street improvements associated with this project include adding angled parking, curb and gutter, sidewalks, street signs and crosswalks along Seed Farm Road and Cholla Avenue. ***Sidewalks and bicycle facilities proposed in this project should connect to this planned park.***



Source: District 3 Master Plan Proposed Retention Basin Park

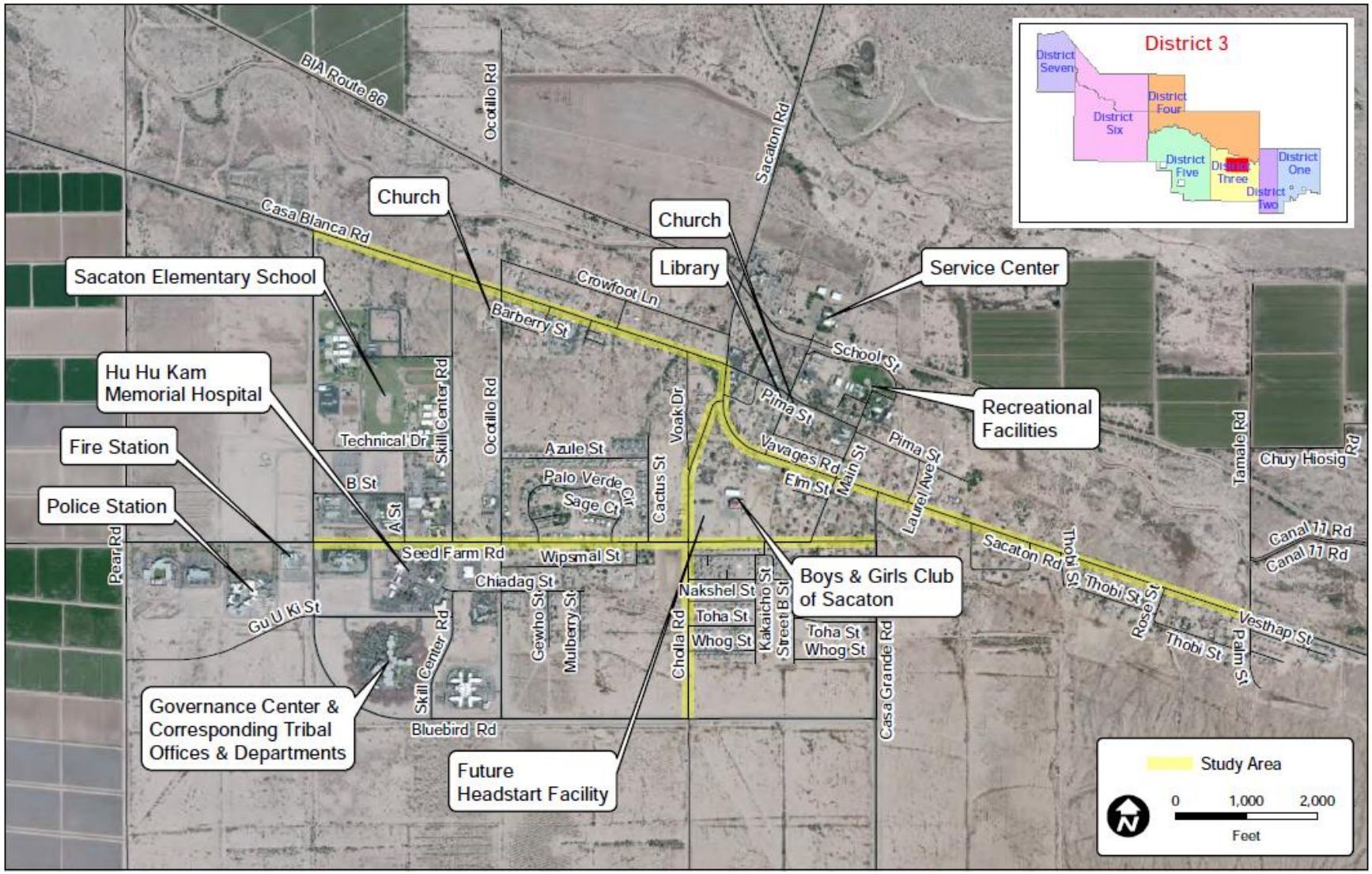
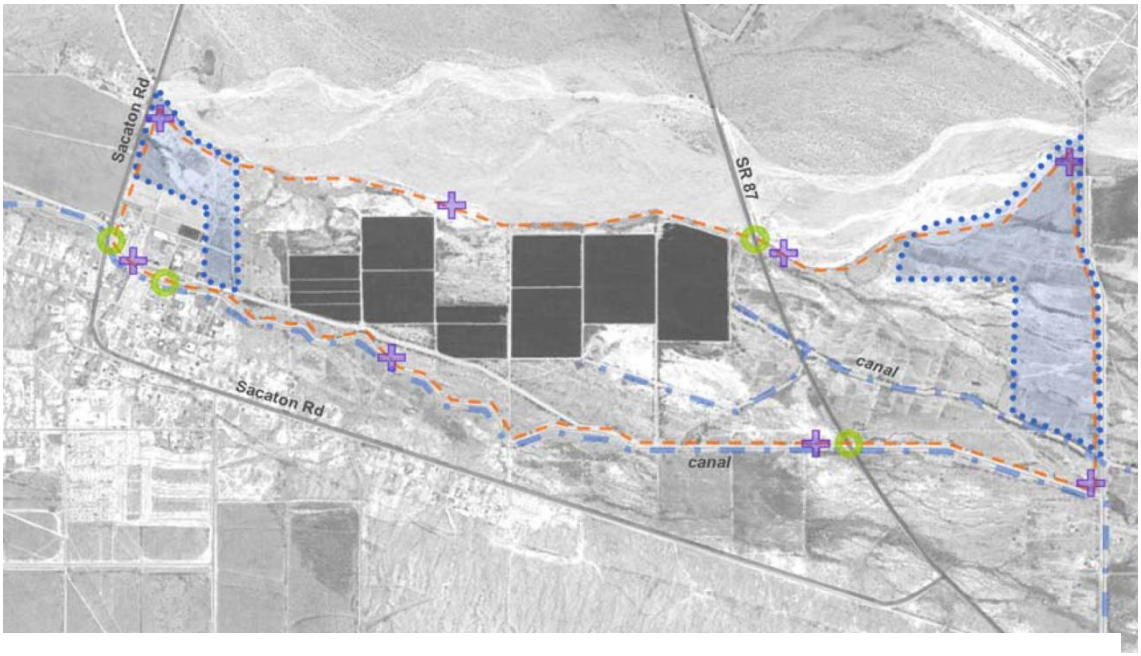


Figure 3-2: District 3 Activity Centers

- Service Center Park, Olberg Road Lake Park, and District Trail System: These projects are large, long-term and multi-phased but once completed, they will provide the District with a comprehensive parks network. ***Although these proposed parks are north of the study area, they will help to identify connections in developing the pedestrian safety study.***



Source: District 3 Master Plan
New District Parks and Trails System

3.1.4 POPULATION LOCATION IN DISTRICT 3

Population density, according to the 2010 Census, is shown graphically in **Figure 3-3**. The graphic shows the census block boundaries with dashed red lines. Residential areas are located along Seed Farm Road, primarily between Ocotillo Road and Cholla Road. On Cholla Road, residential areas are located on the east side of Cholla Road, between Seed Farm Road and Bluebird Road. On Sacaton Road, residential land uses are located primarily between Ocotillo Road and Sacaton Road. On Sacaton Road, residential land uses are located on the north side of the street between Casa Blanca Road and Laurel Avenue and on the south side of the street between Main Street and Thobi Street.

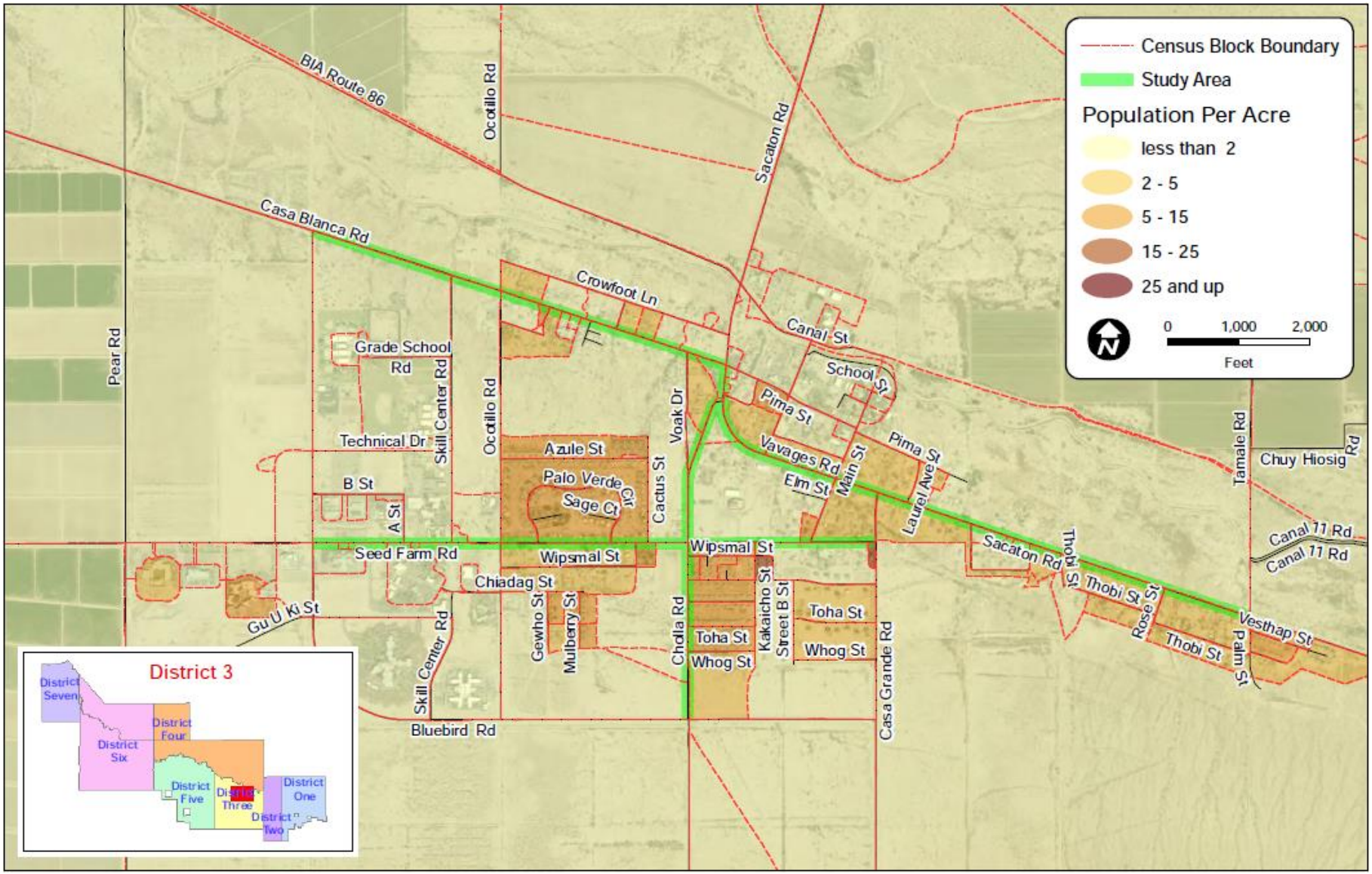


Figure 3-3: District 3 Population Location

3.2 EXISTING TRANSPORTATION CONDITIONS RELATING TO PEDESTRIANS AND BICYCLISTS

3.2.1 EXISTING STREET SYSTEM

Key roads in the study area are described below:

Casa Blanca Road (Rte 1) is a two-lane paved roadway with a six-foot shoulder in the section between Bluebird Road and Cholla Road. Traffic volumes on this segment are approximately 3,200 vehicles per day (2003 count). It is estimated that Casa Blanca Road carries approximately 4,000 vehicles per day in 2014. Within the study area, there is four-way stop sign control at the intersection of Casa Blanca Road/Sacaton Road/Pima Street.

Sacaton Road (Rte 1) is a paved two-lane arterial with a concrete sidewalk located along the north roadway edge from the intersection with Casa Blanca Road east to Main Street. Within the study area, there is a four-way stop sign at the intersection of Casa Blanca Road/Sacaton Road/Pima Street. Traffic volumes on Sacaton Road are approximately 3,100 vehicles per day in 2003. Traffic volumes in 2014 are estimated to be 3,800 vehicles per day.

Seed Farm Road (Rte 24) is a two-lane paved road with curb and gutter on both sides of the road. Sidewalk exists along the south side of the road from Indian Rte 131 to Bluebird Road. Sidewalks are located on both sides of the road from Bluebird Road to Casa Grande Road. Stops signs are located on Seed Farm Road at Pear Street, Ocotillo Road, Cholla Road, and Casa Grande Hwy. Traffic volumes on Seed Farm Road (approximately 500 feet from the Seed Farm Road/ Cholla Road intersection averaged 577 vehicles per day in 2014).

Cholla Road (Rte 139) is a two-lane paved roadway. The existing roadway has limited curb and gutter at the south end of the road (south of Whog Street to Seed Farm Road) and limited sidewalks (adjacent to the new Head Start). Traffic counts on Cholla Road were 1,600 vehicles per day in 2003 and are estimated to be 2,000 vehicles per day in 2014. Stop signs are located on Cholla Road at the intersections of Seed Farm Road (four-way stop sign control), Bluebird Road, and Sacaton Road.

3.2.2 PEDESTRIAN, BICYCLE, AND TRAFFIC COUNTS

Pedestrian, bicycle and traffic counts were collected at four locations in the District, for a two hour time period at each location. These locations are:

- Intersection of Sacaton Road/Casa Blanca Road/Pima Street
- Intersection of Main St/Pima Street
- Intersection of Ocotillo Road/Store (Vendor Area)
- Intersection of Voak Drive/Seed Farm Road

A summary of the counts are provided in **Table 3-1.** The highest pedestrian volumes were recorded at the vendor area on Ocotillo Road.

Table 3-1: 2014 Pedestrian, Bicycle, and Traffic Counts

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND		
Location	**Time period**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**
Sacaton Road/Casa Blanca Road/Pima Street	4-6 p.m.	292	10	0	256	6	0	366	0	0	166	0	0
Main Street/Pima Street	4-6 p.m.	79	4	0	61	4	0	78	2	1	0	10	0
Ocotillo Road /Store (Vendor Area)	11 a.m.-1 p.m.	207	9	0	144	22	0	69	0	0	0	0	0
Cholla Street/Seed Farm Road	4-6 p.m.	93	5	1	140	5	0	405	0	0	182	1	0

Source: Traffic Count taken on May 13, 2014

3.2.3 LEVEL OF SERVICE

The Level of Service on all roads is in the A to C range.

3.2.4 ACCESS MANAGEMENT

The project team reviewed the number of driveway openings and intersections on each of the study area roads to determine whether there may be opportunities to improve pedestrian safety through access management. A brief overview of access points on each road and access management considerations on each road is provided in **Table 3-2**.

Table 3-2: Access Characteristics on Study Area Roads

ROAD NAME	NUMBER OF DRIVEWAY OPENINGS	NUMBER OF INTERSECTING STREETS	ISSUES AND OPPORTUNITIES
Casa Blanca Road	north side 25 driveways south side 15 driveways	north side 2 intersections (Deerhorn Ave and Ocotillo Ln). south side 4 intersections (Voak Dr., unnamed road, Ocotillo Dr. and Skill Center Dr.)	Some of the driveways on the north side of Casa Blanca Road also have access on Crowfoot Road, which may present an opportunity to reduce driveway openings on Casa Blanca Road. It is desirable to reduce the number of driveway openings in order to reduce the number of potential conflict points for pedestrians and bicyclists.
Sacaton Road (Casa Blanca Rd to Main St)	north side 11 driveways south side 7 driveways	north side 2- (Voak Dr. and Church St.) south side 3 - (Voak Dr., Church St. and Cholla Ave.)	There is a potential to upgrade crosswalks and wheelchair accessibility at the Casa Blanca Road/ Sacaton Road/Main Street intersection, which will make the intersection fully accessible.
Sacaton Rd (Main Street to Thobi Drive)	north side 14 driveways south side 13 driveways	north side 1 - (Laurel Rd.) south side 3 - (Calendar Cir., Calendar Cir and Casa Grande Rd)	None identified
Cholla Rd (Bluebird Rd to Whog Street)	No driveway openings located on the east/west side of the street.	No intersections	None identified
Cholla Rd (Whog St to Seed Farm Rd)	No driveways	4 - Toha Rd., Nokshell Rd., Chiadag St. and unnamed road	None identified
Cholla Rd (Seed Farm Rd to Sacaton Rd)	west side 9 driveway openings. east side 8 driveway	2 - Voak Drive and unnamed street	Cholla Rd, south of Seed Farm Road, has curbs at the intersection but do not have curb cuts for handicapped access. Construction of curb cuts will make the intersections accessible

ROAD NAME	NUMBER OF DRIVEWAY OPENINGS	NUMBER OF INTERSECTING STREETS	ISSUES AND OPPORTUNITIES
	openings		to all.
Seed Farm Rd (Bluebird Rd to Casa Grande Hwy)	north side 29 driveways south side 29 driveways	north side 8 - (unnamed road, Skill Center Rd, Ocotillo Dr., Palo Verde Cir, Palo Verde Cir, Cactus St., Cholla Ave. and Main St.) south side (Ocotillo Dr., Unnamed Rd. and Cholla Ave.)	None identified.

Source: Visual inspection

3.2.5 ROAD WIDTHS AND RIGHT-OF-WAY WIDTHS

Current road widths and right-of-way widths are summarized in **Table 3-3**.

Table 3-3: Roadway and Right-of-Way Widths

ROAD NAME	ROADWAY WIDTH (FEET)	RIGHT OF WAY WIDTH (FEET)
Casa Blanca Road, Bluebird Road to Cholla Road	40	100
Sacaton Road, Casa Blanca Road to Main Street	38	80
Sacaton Road, Main Street to Thobi Drive	32	80
Cholla Road, Bluebird Road to Whog St	26	100
Cholla Road, Whog Street to Seed Farm Road	29	100
Cholla Road, Seed Farm Road to Sacaton Road	26	0
Seed Farm Road, Bluebird Road to Casa Grande Hwy	38*	Not available

Source: Tribal Transportation Inventory Route Summary Report (Greenbook) FY 2014 Inventory unless otherwise noted.
*Measured from Google Earth Aerial

3.2.6 PLANNED ROAD IMPROVEMENT PROJECTS

The Tribal Transportation Improvement Program includes the following projects on study area roads:

- Casa Blanca Road and Sacaton Road – rubber chip seal and guardrail repair programmed in fiscal year 2015.
- Sacaton Road, Casa Blanca Road to SR 87 – construct paved 8-foot shoulders in fiscal years 2017-2019.
- Cholla Road – construct sidewalk, curb and gutter, and chip seal in fiscal year 2016.

The Gila River Indian Community Transportation Study (2011) recommended the following projects within the study area:

LOCATION	IMPROVEMENT
Sacaton Road	Urbanize – street lights, curb and gutter, sidewalks, signage
Casa Blanca Road	Urbanize – street lights, curb and gutter, sidewalks, signage
Pima Road and E. Main Street – Optional	Urbanize – street lights, curb and gutter, sidewalks, signage

Other implementation projects listed in the District 3 Master Plan include the following:

- Seed Farm Road Improvements: This project would be in conjunction with the development of a new interchange at I-10 and Seed Farm Road. The new interchange would benefit District 3 by providing a direct route from I-10 to the Community Government/Public Use campus for daily commuters and visitors thereby reducing the amount of through-traffic that impacts Sacaton. The plan includes roadway improvements of Seed Farm Road (paving improvements, landscaping, and walking path). The project limits for this project are from I-10 to just east of Bluebird Road. ***This project should be considered in planning since recommended pedestrian and bicycle improvements may transition into this project.***
- Casa Blanca Road Intersection Improvements: This project involves intersection improvements along Casa Blanca Road, such as adding dedicated right-turn lanes on eastbound Casa Blanca Road, left-turn lanes on westbound Casa Blanca Road at both Ocotillo Road and Bluebird Road, and dedicated right-turn lanes on both Ocotillo Road and Bluebird Road. ***This project should be considered in planning since road widening to incorporate turn lanes could potentially include pedestrian and bicycle improvements.***

Source: District 3 Master Plan

Casa Grande Bicycle Lane Improvement Project

- Casa Grande Hwy Bicycle Lane Improvements: This project involves widening the existing paved section to add a five-foot wide bicycle lane and associated striping and signing along each side of Casa Grande Hwy through Sacaton from Sacaton Road south to the South Side Canal. **Although Casa Grande Hwy is not a study area road, it should be considered in the context of the development of a bicycle network.**
- North Sacaton Road Improvements: This project involves the resurfacing and widening of Sacaton Road from Casa Blanca Road north to the Gila River. Although this is a circulation project to address safety issues raised by residents, it would also facilitate the development of the proposed expanded District Park adjacent to the District Service Center by relocating the main park entrance onto Sacaton Road. This project would include new roadway and intersection paving, 20' extensions to each end of two concrete culverts at the canal crossings, installation of guard rails at each culvert crossing, and installation of the interconnected trail improvements along the east side of Sacaton Road. ***This project, whose south terminus is at the Sacaton Road / Casa Blanca Road/Pima Street intersection, should be considered in the development of sidewalks and trails.***
- Downtown Sacaton Street Improvements: This project involves street improvements and providing pedestrian amenities to revive the historic downtown Sacaton neighborhood into a small yet thriving mixed-use core. This project includes new paving, angled parking, curb and gutter, sidewalks, street lights, benches, street signing, and landscaping. ***Study area roads in this area should particularly be considered for pedestrian improvements.***

Proposed Project area for Downtown Sacaton Street Improvements

Source: District 3 Master Plan

3.2.7 FUNCTIONAL CLASSIFICATION

Roads in the study area that are functionally classified in the Tribal Transportation Inventory are shown in **Table 3-4**.

Table 3-4: Tribal Transportation Inventory Functional Classification

DISTRICT 3 STUDY AREA ROADS	CLASS	DESCRIPTION
Sacaton Road Casa Blanca Road	2	Rural minor arterial roads providing an integrated network having the characteristics for serving traffic between large population centers, generally without stub connections. May also link smaller towns and communities to major resort areas that attract travel over long distances and generally provide for relatively high overall travel speeds with minimum interference to through traffic movement. Generally provide for at least inter-county or interstate service and are spaced at intervals consistent with population density. This class of road will have less than 10,000 vehicles per day.
Seed Farm Road Cholla Road	5	Rural local road that is either a section line and/or stub type roads, make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. Also included are roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes.

Source: Tribal Transportation inventory Green Sheets, FY 2014 Update

3.2.8 PAVEMENT CONDITIONS

Pavement conditions for the study area roads are summarized in **Table 3-5.**

Table 3-5: Pavement Conditions

ROAD NAME	ROADBED CONDITION CODE IN THE TRIBAL TRANSPORTATION INVENTORY	DESCRIPTION OF PAVEMENT CONDITIONS, BASED ON REVIEW OF AERIALS	COMMENTS
Casa Blanca Road (Rte 1)	5- A roadbed constructed to adequate standards with good horizontal and vertical alignment and proper drainage	There is transverse cracking which has been patched.	
Sacaton Road (Rte 1)	5- A roadbed constructed to adequate standards with good horizontal and vertical alignment and proper drainage	There is transverse cracking which has been patched.	

ROAD NAME	ROADBED CONDITION CODE IN THE TRIBAL TRANSPORTATION INVENTORY	DESCRIPTION OF PAVEMENT CONDITIONS, BASED ON REVIEW OF AERIALS	COMMENTS
Seed Farm Road (Rte 24)	7- A roadbed constructed to adequate standards- curb and gutter on both sides	Paving is in good condition	There is an opportunity to provide shoulder striping on this road.
Cholla Road (Rte 139)	5- A roadbed constructed to adequate standards with good horizontal and vertical alignment and proper drainage	Some edge raveling, transverse cracking, particularly at the north study area road limits.	

Source: Tribal Transportation Inventory

3.2.9 EXISTING SIDEWALKS AND CROSSWALKS

Existing sidewalks and crosswalks are shown in **Figure 3-4**. Existing sidewalks are located on Seed Farm Road, on Cholla Road adjacent to the new Head Start (this is a recent improvement) and on the north side of Sacaton Road between Casa Blanca Road and Main Street.

New sidewalk and street lighting on Cholla Road, adjacent to the Head Start.

3.2.10 STREET LIGHTING

Street lighting is located on segments of Seed Farm Road between Ocotillo Road and Cactus Road, near the Cholla Road Intersection, and between Main Street and Casa Grande Highway. On Casa Blanca Road, street lights are located between Ocotillo Road and Voak Road. On Sacaton Road, street

lights are located between Cholla Road and Casa Grande Highway. On Cholla Road, street lights are located primarily between Seed Farm Road and Sacaton Road with some intersection lighting.

3.2.11 CRASH DATA

ADOT crash data has been obtained and analyzed for pedestrian and bicycle crashes within the Community. The crash data spanned a five-year period from January 1, 2009 to February 4, 2014. Four pedestrian and bicycle-related crashes occurred in the District 3 study area, which are described below:

- Ocotillo Road near Seed Farm Road: A non-intersection related pedestrian-vehicle crash resulted from inattention or distraction on the part of the pedestrian. The incident resulted in possible injury and occurred in clear/dry conditions during daylight hours.
- Sacaton Road at Main St: A pedestrian-vehicle crash occurred that resulted from the pedestrian not using the crosswalk. The incident resulted in an incapacitating injury with no contributing circumstances listed in the crash summary. This crash occurred in clear/dry conditions at night.
- Cholla Road at Seed Farm Road: An intersection related pedestrian-vehicle crash occurred at a four-way intersection. The vehicle was making a left turn. The cause of the crash is unknown. The incident resulted in no injuries and occurred in dry conditions at night.
- Sacaton Road at Canal Street: An angle bicycle-vehicle crash occurred with no contributing circumstances. The cause of the crash is unknown. The incident resulted in a non-incapacitating injury and occurred in clear conditions at dusk.

3.2.12 TRANSIT AND SCHOOL BUS ROUTES AND STOPS

A transit system is planned to be implemented in District 3. A need for transit has been identified in the Gila River Indian Community Transit Feasibility and Implementation Plan. Transit service is also planned in Districts 6 and 7. The transit route and stops in District 3 are shown in **Figure 3-5**.

Discussion with school personnel from the Casa Blanca Community School, Sacaton School District, and others have indicated that school bus drivers typically pick up students at or near their homes and that other school bus stops can change from year to year. School bus stops from the Sacaton School District were made at individual homes on Seed Farm Road, Sacaton Road, and Casa Blanca Road.

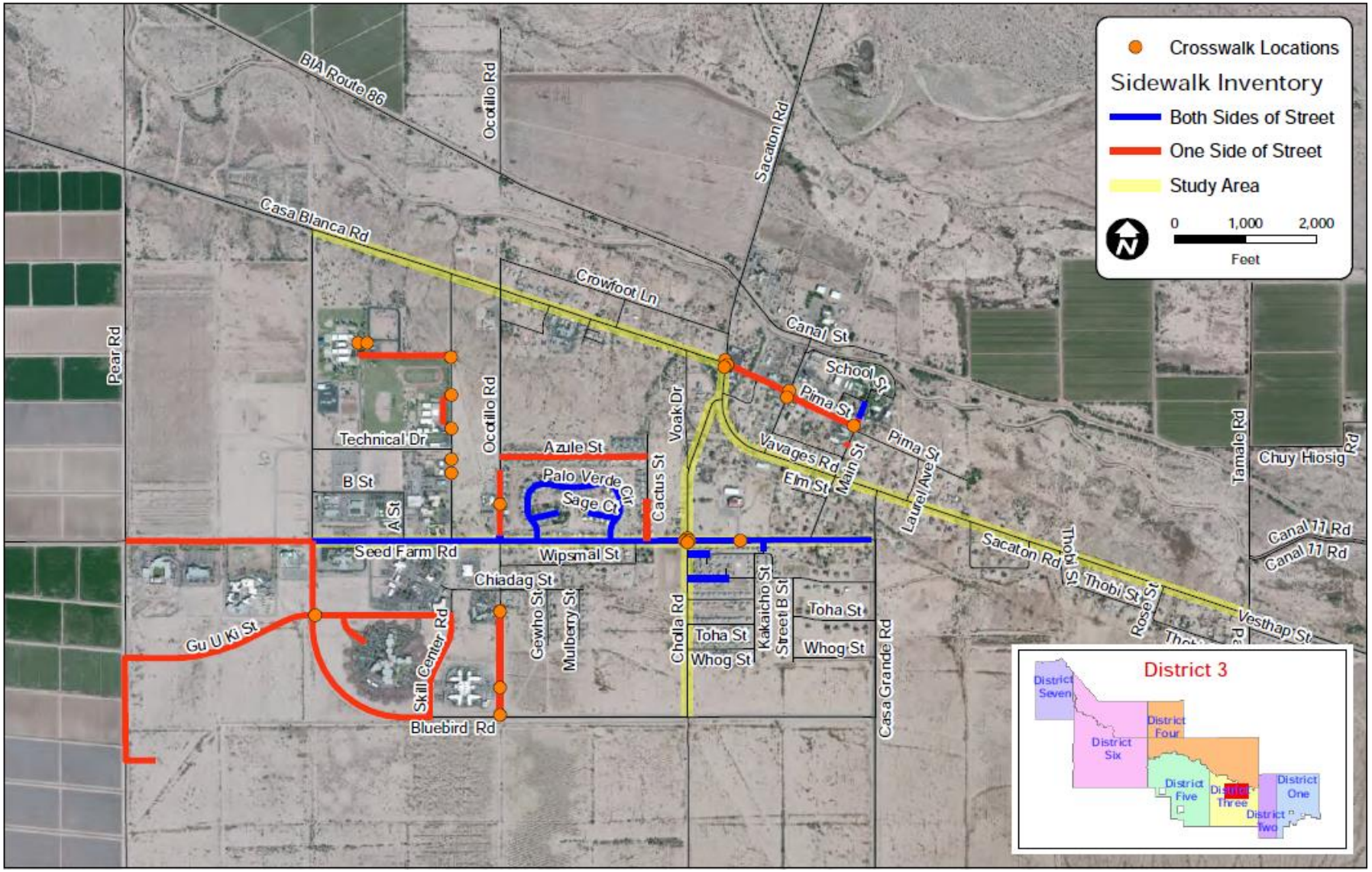


Figure 3-4: District 3 Sidewalks

Stops	Time	Notes
1. Memorial Park / Shell Station	:00	Access to WIC and PO
2. Library	:03	
3. GRICDOT Realty / Housing	:05	Access to Pima Agency
4. Boys and Girls Club	:08	
5. Housing on Seed Farm Rd	:10	Access to RPY
6. Caring House/Early Education	:15	
7. Governance Center	:18	
8. PD/Courts	:20	
9. HuhuKam Memorial Hospital	:25	
10. Sacaton Supermart	:28	
11. Executive Ki	:30	

Legend:

Bus Stop

Notes:

- Bus Route will begin at the Shell Station and head East on Pima St.
- Turn South on Main St.
- Turn West on Seed Farm Road.
- Turn South on Ocotilo Rd.
- Turn West on Bluebird Rd.
- Turn North on Skil Center Rd
- Turn West on North Access Road
- Turn North on Bluebird Rd.
- Turn West on Seed Farm Rd.
- Turn into Judicial Complex, exit East on Seed Farm Rd.
- Turn North on Ocotillo Rd.
- Turn East on Casa Blanca Rd. and head to Shell Station.

Figure 3-5: Transit Circulator Route in District 3

3.3 DRAINAGE AND ENVIRONMENTAL CONDITIONS

3.3.1 CHARACTERISTICS OF THE PHYSICAL, NATURAL, AND CULTURAL ENVIRONMENTS

Biological Resources

The District 3 study area is within the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community. Based on a review of the U.S. Fish and Wildlife Service Threatened and Endangered Species Natural Resources List and aerial photos, it has been determined that there is no suitable habitat for threatened or endangered species in the study area. However, the study area may provide suitable habitat for two candidate species (Sonoran Desert tortoise and Tucson shovel-nosed snake). If there is a federal nexus (federal funding, Section 404 permitting, etc.) then improvements identified in this study will require a biological evaluation by a qualified biologist during the environmental clearance process.

Section 404/401 of the Clean Water Act

Based on the review of aerial photography, there are washes that could be considered Waters of the United States under the jurisdiction of the U.S. Army Corps of Engineers within the study area. If the proposed projects will impact these potential Waters of the United States, a Section 404 permit and a Section 401 certification will be required.

Hazardous Materials

The U.S. Environmental Protection Agency Envirofacts website has been reviewed for Environmental Protection Agency regulated facilities in the study area. There are no facilities within the study area and the facilities in the vicinity of the study area are 1) of sufficient distance and/or down-gradient from the project area as to not pose an environmental concern; 2) do not have violations; or 3) have completed remediation/compliance.

Cultural Resources

Fourteen previous archaeological surveys have been conducted within the vicinity of the study area. The study area has been surveyed with the exception of 9.51 acres along Sacaton Road, Seed Farm Road, and Casa Blanca Road. Five archaeological sites have been recorded within the study area. Additional survey of the 9.51 acres that have not previously been surveyed and consultation with the Gila River Indian Community will need to occur when an individual project is at the 30% design plan stage.

3.3.2 DRAINAGE ISSUES AND FLOODING

Casa Blanca/Sacaton Road is a two-lane paved road with unpaved shoulders. The existing roadway does not have curb and gutter or sidewalks on either side of the road. Minor graded ditches or swales are located on either side of the roadway. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. Several drainage culvert crossings of Casa Blanca Road are depicted in **Figure 3-6.** These culverts handle drainage flows originating from off-site (non-pavement drainage). For example, a cross culvert is located on Casa Blanca Road at Bluebird Road on the east side of the intersection. This culvert takes flows from a channel located along Bluebird Road (east side of road) and passes the drainage under Casa Blanca into a channel on the north side of Casa Blanca. This particular culvert has capacity for smaller flows

and is prone to sediment deposition, causing potential local flooding issues. Driveways along the south side of Casa Blanca Road typically have driveway culverts to accommodate drainage along the road and for access to properties. Casa Blanca Road along the Ira B. Hayes Memorial Park has sidewalk and a paved shoulder on the south side of the road, which extends around the Ira B. Hayes Memorial Park to Sacaton Road.

Sacaton Road is a paved two-lane arterial with a concrete sidewalk located along the north roadway edge from the intersection with Casa Blanca Road east to Main Street. No curb and gutter exists along Sacaton Road. Many of the residences along Sacaton Road have driveway culverts to allow drainage flows to be conveyed in the small roadside drainage ditch located on the south side of the road. East of Main Street there is no sidewalk or curb and gutter. As with Casa Blanca Road, off-site drainage sheet flows from the south and flows toward the north. The roadside ditch along Sacaton Road does not have capacity to handle large storm events; therefore, Sacaton Road is subject to potential drainage flowing over the road.

Seed Farm Road (Rte 24) is a two-lane paved road with curb and gutter on both sides of the road. Sidewalk exists along the south side of the road from Indian Rte 131 to Bluebird Road. Sidewalks are on both sides of the road from Bluebird Road to Casa Grande Road. Very minor graded ditches or swales are located on either side of the roadway, but at limited locations. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed to have occurred on the pavement either from local drainage or windblown sources. Several drainage catch basins and scuppers along the road capture pavement drainage, which is then directed to adjacent retention basins or into drainage channels.

Cholla Road is a two-lane paved road with no shoulders. Cholla Road is located from Seed Farm Road to Sacaton Road. The existing roadway has limited curb and gutter at the south end of the road (south of Whog Street to Seed Farm Road) and limited sidewalks (adjacent to the new Head Start). The road is at-grade and includes very minor graded ditches or swales on either side of the roadway, but at limited locations. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. No known off-site drainage culvert crossings of Cholla Road exist, but there are several driveway culverts as depicted in **Figure 3-6**.

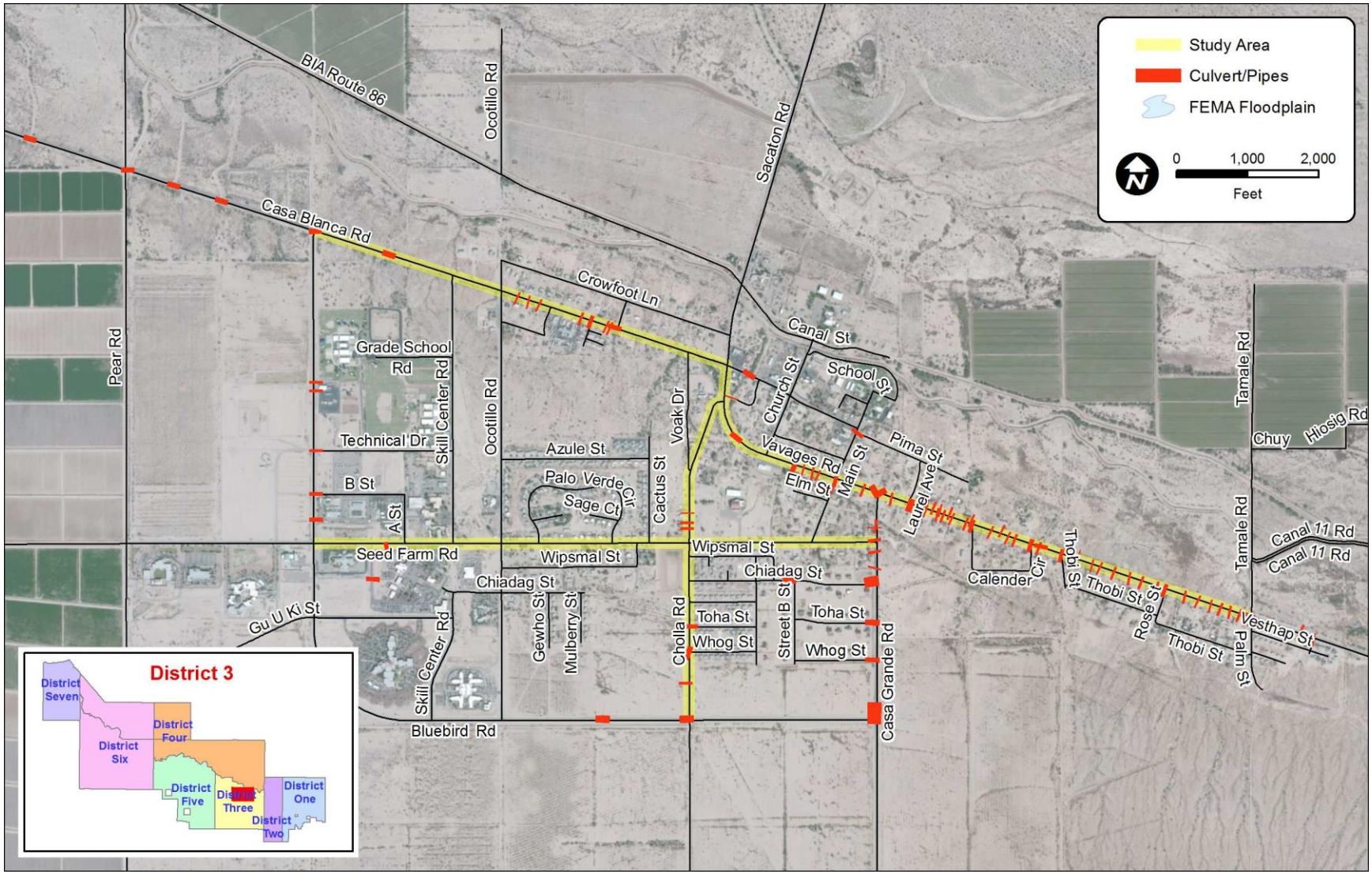


Figure 3-6: District 3 Drainage Infrastructure

3.4 SUMMARY OF PEDESTRIAN SAFETY NEEDS IN DISTRICT 3

District 3 is the heart of the Gila River Indian Community Government and is a key employment area. It has a mix of residential land uses and Community activity centers such as the Governance Center, Hu Hu Kam Hospital, police and fire departments, schools, and large Head Start and Boys and Girls Club facilities.

Key pedestrian needs are shown graphically in **Figure 3-7**. Pedestrian safety needs were identified through a process which includes extensive public outreach, input from stakeholders, analysis of crash data and road conditions, and analysis of how pedestrian facilities will link residents to activity centers, such as schools, parks, Multipurpose Centers and Service Centers. Key needs include the following:

Seed Farm Road is wide enough to be restriped to provide a bicycle lane

Casa Blanca Road

- Provide sidewalk on the north side of street.
- Restripe to provide a shoulder area for bicyclists.
- Widen existing sidewalks at the intersection of Casa Blanca Road/ Sacaton Road/ Pima Street and provide accessibility and crosswalk improvements. Provide a bus shelter adjacent to the planned bus stop immediately east of the intersection (on Pima Street).

Sacaton Road

- Provide sidewalks to connect neighborhoods on the north and south sides of the street.
- Provide landscaping improvements to provide shade along this walking route.

Cholla Road

- Provide sidewalks to develop a sidewalk system on Cholla Road.
- Provide ADA curb cuts at intersection locations south of Seed Farm Road.

Seed Farm Road

- Stripe shoulder area for bike lane.
- Provide bus stops and shelters at proposed transit stop locations.

Drainage improvements

- Provide curb and gutter at new sidewalk locations to keep pavement drainage off sidewalks.
- Provide new or improved culvert locations at cross drainages and at existing culvert locations to improve the drainage so that pedestrians can walk more easily.

Other improvement needs

- Provide sidewalk or multi-use paths to connect from the Sacaton Elementary School to Ocotillo Street.

- Continue sidewalk on the west side of Ocotillo Street.
- Provide landscaping and benches around Bluebird Road, which is used as an exercise path.
- Provide sidewalk connections on Church Street and Main Street.
- Provide accessible ramps, refreshed crosswalk markings, and culvert improvements at the Pima Street/Main Street intersection.
- Provide mobile speed monitors on Skill Center Road to reduce traffic speeds.
- Provide connection between Skill Center Road and Chiadag Street to connect current walking paths.
- Provide bus shelters at other transit stop locations on Ocotillo Road, Pima Street, and Main Street.

3.5 RECOMMENDED IMPROVEMENTS TO MEET IDENTIFIED NEEDS

A program of improvements has been developed to address pedestrian safety needs. An overview of the projects is presented in **Figure 3-8**. Following this table are project information sheets describing recommended improvement projects on each roadway. These improvement projects are summarized in **Table 3-6**. It should be noted that a summary of recommended drainage improvements is provided in **Appendix B**. This Appendix also provides maps of the drainage improvements.

3.5.1 STUDENT PEDESTRIAN SAFETY

One emphasis of the study has been the identification of pedestrian safety improvements focused on enhancing safety for school children. This included investigating potential improvements for school bus stop locations, based on discussions with school transportation providers. Although no common school bus stop areas were identified in District 3, there are potential locations for the planned Tribal transit system bus stops that may serve a joint purpose for both school bus stops and transit system stops. Further coordination will be needed once the transit system is operating. It should be noted that the recommended improvements will make it safer for school children, as well as the general public, to walk in the Community. In particular, improvements on Skill Center Road, near schools, as well as the path connection recommended on the Azule Street alignment, will assist in providing a safer travel environment for children. Improvements recommended at the intersection of Sacaton Road / Casa Blanca Road will also improve safety for school children, as this intersection is a high school bus pick up location.

3.5.2 ACCESS MANAGEMENT TECHNIQUES FOR PEDESTRIAN SAFETY

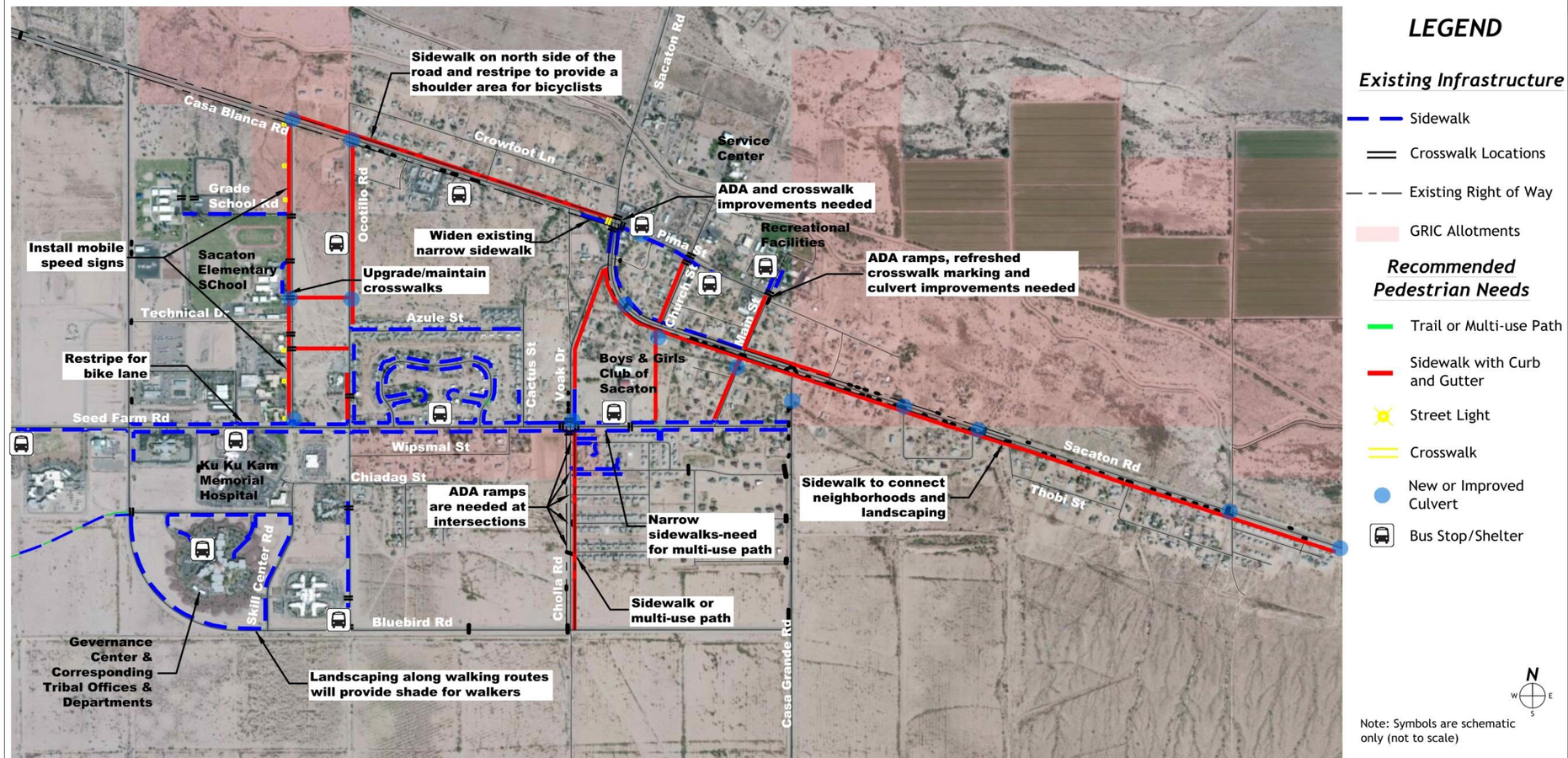
As further development occurs in the Community, access management techniques can be used to help improve pedestrian safety. Examples of access management techniques are:

- Reducing the number of driveways, within a given distance (per block or mile) through provisions of frontage roads and closing multiple driveways that serve one location.
- Providing greater separation between driveways.
- Providing a safe refuge for pedestrian crossings with raised medians.
- Providing right-turn lanes for high-volume driveways.
- Constructing a landscaped or other clearly marked buffer helps to visually define sidewalk and driveway locations.

- Providing a clear zone free of visual obstructions such as signs, large trees and bushes, or parked vehicles, which will allow pedestrians to be seen by drivers and to see oncoming vehicles.

Access management opportunities and how they were addressed in the plan are:

- Cholla Road – The segment of Cholla Rd, south of Seed Farm Road, has curbs at the intersection but does not have curb cuts for handicapped access. An improvement project is recommended to install curb cuts for handicapped access.
- Casa Blanca Road/ Sacaton Road/Main Street – An opportunity has been identified to upgrade crosswalks and wheelchair accessibility at the Casa Blanca Road/ Sacaton Road/Main Street intersection. An improvement project is recommended at this intersection.
- Casa Blanca Road - Some of the driveways on the north side of Casa Blanca Road also appear to have access on Crowfoot Road, which may present an opportunity to reduce driveway openings on Casa Blanca Road. Although no improvement is specifically recommended, this strategy could be considered as part of a future reconstruction project.



District 3 Study Area

Figure 3-7: District 3 Pedestrian Needs

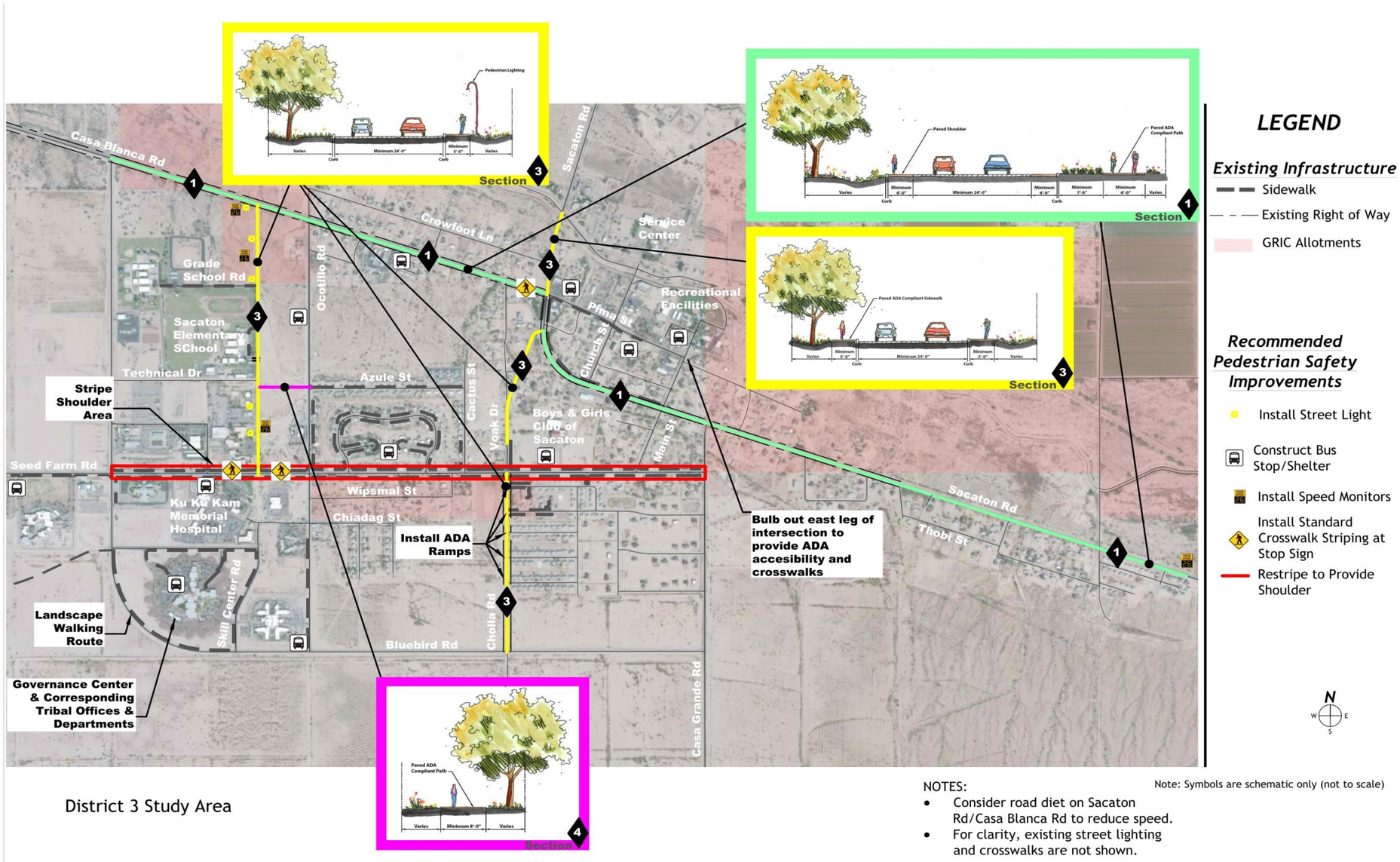


Figure 3-8: District 3 Recommended Pedestrian Safety Improvements

Table 3-6: District 3 Recommended Pedestrian Safety Improvement Projects

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Seed Farm Road (Rte 24)				
Stripe 5-foot shoulder area on Seed Farm Road on both sides of street.	Bluebird Road to Casa Grande Highway	1.50	2,000	Seed Farm Road has an existing sidewalk system.
Construct 4 bus pads and shelters.	4 locations – Hu Hu Kam Hospital, Boys and Girls Club, between Ocotillo Road and Cactus Road, and west of Bluebird Road	N/A	44,000	Confirm location and need once Tribal transit service has been established. There are right-of-way and drainage issues to be addressed depending on shelter placement.
Cholla Road (Rte 139)				
Construct sidewalk with vertical curb on east side of road	Seed Farm Road to Sacaton Road	0.87	Asphalt – 145,000 Concrete – 300,000	Cost includes grading, sidewalk paving option (asphalt or concrete), miscellaneous signing, and one culvert extension near Whog Street.
Retrofit curbs to be accessible to persons with disabilities (e.g. curb ramps, raised domes on curb ramp)	Streets are Whog Street, Toha Street, Nokshell Road, Chiadag Street, one unnamed road.	N/A	21,000	
Casa Blanca Road (Rte 1)				
Construct sidewalk with curbs on north side of road.	Bluebird Road to Sacaton Road	1.16	Asphalt – 545,000 Concrete – 755,000	Cost includes sidewalk paving option (asphalt or concrete), and signing. Drainage improvements include two drainage pipe upgrades and extensions, one drainage pipe extension, and one new culvert.

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Construct cross walk at west leg of intersection ADA accommodations.	Casa Blanca Road/Sacaton Rd intersection	N/A	3,000	
Construct 1 bus pad and shelter	Near Tribal offices at 291 West Casa Blanca Rd	N/A	11,000	Confirm location and need once Tribal transit service has been established.
Install solar radar monitor (1 location)	Specific location to be determined – at east end of route	N/A	8,000	This would likely be a District project.
Install gateway signage (1 location)	Specific location to be determined – at east end of route	N/A	2,000	This would likely be a District project.
Sacaton Road (Rte 1)				
Construct sidewalk on south side of road.	Casa Blanca Road to east of Thobi Street	1.74	Asphalt – 685,000 Concrete –1,000,000	Right-of-way and drainage issues. Drainage upgrades assume four drainage pipes extended beyond the new shoulder, and three drainage pipes are upgraded.
Install solar radar monitor (1 location)	Specific location to be determined – at east end of route	N/A	8,000	Cost assumes solar lighting at 200 foot spacing.
Other projects				
Construct a path on Azule Street alignment.	Azule Street, Skill Center Road to Ocotillo Drive	0.13	Asphalt – 25,000 Concrete – 65,000	Cost includes grading, sidewalk paving option (asphalt or concrete), and miscellaneous signing. It also assumes a new pipe connector north-south to convey water to the proposed ditch on Skill Center Road.

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Governance Center Pedestrian Landscaping Enhancements.	A 1.13 mile route around the Governance Center	1.13	35,000	This is a popular employee walking route – landscaping will provide shade.
Construct sidewalk on Skill Center Road.	Skill Center Road, Seed Farm Rd to Casa Blanca Road	0.82	Asphalt – 115,000 Concrete – 260,000	Cost includes sidewalk paving option (asphalt or concrete), and miscellaneous signing. It also assumes a new ditch.
Install solar radar monitor (2 locations) on Skill Center Road.	Specific locations to be determined	N/A	16,000	Locate prior to school zones.
Install street lighting on Skill Center Road.	Skill Center Road, Seed Farm Rd to Casa Blanca Road	N/A	260,000	Assume solar street lighting at 200 foot spacing.
Install bus pads and shelters (6 locations)		N/A	66,000	Confirm location and need once Tribal transit service has been established.
Pedestrian improvements at Pima Street/Main Street intersection, ramps on east and west legs of intersection. Stripe crosswalks at stop signs.	Pima Street/Main Street/ unnamed Road	N/A	To be determined.	Provide bulb out on east leg of intersection to provide an accessible crossing.
Install sidewalk on both sides of Sacaton Road (Rte 1), Casa Blanca Road to 0.3 miles north	Sacaton Road, Casa Blanca Road to 0.3 miles north	0.30	Asphalt – 250,000 Concrete – 355,000	Cost includes sidewalk paving option (asphalt or concrete), and miscellaneous signing.

Note: costs are based on 2014 estimated costs and include a 30% contingency to account for mobilization (8%), miscellaneous work (12%), construction surveying and layout (2%), erosion control (1%), contractor quality control (2%), furnish water supply (1%), and maintenance and protection of traffic (4%). See **Appendix B** for further information regarding recommended drainage improvements.

Project Information Sheet - Seed Farm Road (Rte 24)

Project Name	Seed Farm Road Pedestrian Safety Improvements		
Project Location	Seed Farm Road, Bluebird Road to Casa Grande Highway (1.50 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalks and Paths: Stripe or refresh striping crosswalks at stop sign locations.		
	Bicycle lane: Stripe a shoulder area on both sides of the road to serve as a bike lane.		
	Transit : Construct bus pads and shelters at 4 locations after the Tribal Transit system is implemented.		
Project Justification	Seed Farm Road serves many activity centers in the Community, Including the Boys and Girls Club, Head Start, Hu Hu Kam Hospital, and the Police Department. Striping a shoulder will provide a defined area for bicyclists to ride, thus increasing safety. Provision of additional crosswalks at stop sign locations will also enhance safety. Bus shelter and pad locations would be dependent on the ridership and final location of stops once the Tribal Transit System begins later in 2014.		
Cost Estimate	See Table 3-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	There is an existing sidewalk system on this road. Transit pads and shelters are dependent on funding.		

Seed Farm Road, looking east

Project Information Sheet- Cholla Road (Rte 139)

Project Name	Cholla Road Pedestrian Safety Improvements		
Project Location	Cholla Road, Bluebird Road to Sacaton Road (1.50 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalks and Paths: Construct sidewalk on one side of the road.		
	Drainage Improvements Extend culvert at one location.		
	Intersection Improvements Retrofit curbs to be ADA accessible at 5 intersections.		
Project Justification	Cholla Road carries an estimated 2,000 vehicles per day and provides a road connection between homes and activity centers such as the Head Start and Boys and Girls Club. Completing the sidewalk system on this road will serve not only homes on Cholla Road, but homes on streets intersecting Cholla Road.		
Cost Estimate	See Table 3-6		
Potential Funding Sources	Tribal Transportation Program; Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	There is an existing sidewalk system on a section of this road, by the new Head Start. There are design constraints with the existing lighting system at the north end of the road.		

Cholla Road south of Sacaton Road, looking north

Project Information Sheet-Casa Blanca Road (Rte 1)

Project Name	Casa Blanca Road Pedestrian Safety Improvements		
Project Location	Casa Blanca Road, Bluebird Road to Sacaton Road (0.87 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalks and Paths: Construct 6-foot path on north side of road.		
	Drainage Improvements Drainage improvements include two drainage pipe upgrades and extensions, one drainage pipe extension, and one new culvert pipe to provide positive drainage.		
	Intersection Improvements Stripe crosswalk on west leg and provide ADA accommodations at Casa Blanca Road/Sacaton Road intersection.		
	Transit Construct a bus pad and shelter at one location.		
	Traffic Calming Provide gateway signs. Implement speed monitoring devices such as portable radar signs. Provide speed enforcement periodically.		
Project Justification	Casa Blanca Road is a rural minor arterial road which carries approximately 4,000 vehicles per day. Casa Blanca Road provides extensive connectivity through Sacaton. Providing pedestrian paths will link residences to the central area of Sacaton.		
Cost Estimate	See Table 3-6		
Potential Funding Sources	Tribal Transportation Program; Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		

Casa Blanca Road, looking west

Project Information Sheet – Sacaton Road (Rte 1)

Project Name	Sacaton Road Pedestrian Safety Improvements		
Project Location	Sacaton Road, Casa Blanca Road to east of Thobi Street (1.74 miles) and from Casa Blanca Road to 0.3 miles north of Casa Blanca Rd		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalks and Paths: Sacaton Road to east of Thobi Street: Construct sidewalk on south side of road. Sacaton Road to 0.3 miles north: construct a sidewalk with curbs on both sides of street.		
	Drainage Improvements Extend culverts at 4 locations and upgrade drainage pipes at three locations. .		
	Traffic Calming Implement speed monitoring devices such as portable radar signs. Provide speed enforcement periodically.		
Project Justification	Sacaton Road is a rural minor arterial road which carries approximately 3,800 vehicles per day. It provides extensive connectivity through Sacaton and paths will link residences to central Sacaton.		
Cost Estimate	See Table 3-6		
Potential Funding Sources	Tribal Transportation Program; Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	These projects are assumed to be separate phases, but could be combined into a larger project. The canal crossing on Sacaton Road is planned to be improved in the Transportation Improvement Program.		

Sacaton Road, east of Main Street, looking east

Project Information Sheet-Azule Street Path

Project Name	Azule Street Alignment Path Pedestrian Safety Improvements		
Project Location	Path on Azule Street Alignment, Skill Center Road to Ocotillo Road (0.13 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalks and Paths: Construct a path between Skill Center Road and Ocotillo Road on Azule Street alignment.		
	Drainage Improvements At the intersection of this path with Skill Center Road, provide a north-south drainage connector to convey water to proposed ditch on Skill Center Road.		
Project Justification	This project formalizes a path that is used by students and others to reach stores and vendor areas on Ocotillo Road as well as homes, and activity centers such as the Boys and Girls Club.		
Cost Estimate	See Table 3-6		
Potential Funding Sources	Tribal Transportation Program; Transportation Alternatives Program.		
Comments	The area is culturally sensitive. The land is Tribal land in this area.		

Azule Street

Azule Street Alignment

Project Information Sheet- Skill Center Road

Project Name	Skill Center Road Pedestrian Safety Improvements		
Project Location	Skill Center Road, Seed Farm Road to Casa Blanca Road (0.82 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☒	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalks and Paths: Construct a sidewalk on the west side of Skill Center Road.		
	Drainage Improvements Construct new ditch.		
	Lighting Improvements Construct solar street lighting.		
	Traffic Calming Implement speed monitoring devices such as solar speed radar signs. Provide speed enforcement periodically.		
Project Justification	Skill Center Road provides access to a number of schools and sidewalks will make it easier for children to walk to school.		
Cost Estimate	See Table 3-6		
Potential Funding Sources	Tribal Transportation Program; Transportation Alternatives Program, School District funding. More potential funding sources are provided in Table 10-1.		
Comments			

Skill Center Road, looking south

Project Information Sheet – Governance Center Pedestrian Landscaping Enhancements

Project Name	Gila River Indian Community Governance Center Pedestrian Improvements		
Project Location	Roads surrounding the Governance Center (Bluebird Road, Skill Center Road), Seed Farm Road to Casa Blanca Road (1.13 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalks and Paths: This project would provide landscaping near the sidewalk system that circles the Governance Center.		
Project Justification	Employees and residents frequent this loop as a walking route for recreation and exercise. Landscaping would provide shade and a more inviting pedestrian environment.		
Cost Estimate	See Table 3-6		
Potential Funding Sources	Tribal Transportation Program; Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments			

Bluebird Road near Governance Center

Project Information Sheet – Pima Street/Main Street Intersection Improvements

Project Name	Pima Street/ Main Street Intersection Improvements		
Project Location	Pima Street/ Main Street Intersection		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalks and Paths: Provide a bulb-out of the east leg of the intersection to accommodate an accessible crosswalk. Also stripe a crosswalk on the west leg of the intersection.		
Project Justification	This intersection, which is offset, is in need of improvements to the east leg of the intersection. Currently drainage culverts are located where normally pedestrians would cross.		
Cost Estimate	See Table 3-6		
Potential Funding Sources	Tribal Transportation Program; Transportation Alternatives Program.		
Comments	A more detailed scoping study is needed to provide an accurate cost estimate for this improvement.		

Pima Street/Main Street intersection

Project Information Sheet – Bus System Enhancements

Project Name	Tribal Transit Bus Shelters		
Project Location	Various		
Roadway Ownership	Bureau of Indian Affairs ☐	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☐	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Bus shelters and pads This project would provide bus shelters and pads at 6 locations in District 3.		
Project Justification	Bus pads and shelters would enhance transit rider comfort and convenience, especially during the summer months.		
Cost Estimate	See Table 3-6		
Potential Funding Sources	Tribal Transportation Program; Transportation Alternatives Program.		
Comments	This project would depend on ridership and final stop locations once the Gila River Indian Community Tribal Transit System is established. The bus shelters could also potentially be used as school bus stops.		

3.6 IMPROVEMENT PROJECT PRIORITIZATION

The transportation improvement projects will address critical pedestrian and bicycle needs.
A matrix has been developed to assign the priorities for various improvement project elements into short, mid- or long range time frames. The prioritization is summarized in **Table 3-7**. However, as funding becomes available, or priorities change, these projects can be re-prioritized.

Table 3-7: District 3 Pedestrian Safety Improvements Prioritization

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Seed Farm Road, Bluebird Road to Casa Grande Highway																		
Stripe shoulder area on Seed Farm Road on both sides of street	1	2	0	2	3	5	2	2	1	2	2	2	2	5	1	32	Short	
Construct 4 bus pads and shelters	1	2	0	2	3	3	2	2	1	2	2	2	2	5	2	31	Short	
Cholla Road, Seed Farm Road to Sacaton Road																		
Construct 6– foot sidewalk on east side of road	4	2	1	2	4	1	2	2	2	2	2	2	2	0	2	30	Short	
Retrofit curbs to be accessible (at 5 cross streets)	4	2	1	2	4	3	2	2	1	2	2	2	2	5	1	35	Short	
Casa Blanca Road, Bluebird Road to Sacaton Road																		
Construct 6-foot path with curbs on north side of road	1	2	0	2	4	1	2	2	2	2	2	2	2	0	2	26	Mid	
Construct cross walk at west leg of intersection and provide accessible curb cuts.	1	2	0	2	4	4	2	2	1	2	2	2	2	5	2	33	Short	
Construct 1 bus pads and shelter	1	2	0	2	4	3	2	2	1	2	2	2	2	5	2	32	Short	
Install solar radar monitor (1 location)	1	2	0	2	4	4	2	2	1	2	2	1	1	5	1	30	Short	
Install gateway signage (1 location)	1	2	0	2	4	5	1	2	1	2	2	1	1	5	1	30	Short	

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Sacaton Road, Casa Blanca Road to east of Thobi Street																		
Construct sidewalk on south side of road	4	2	1	2	4	1	2	2	2	2	2	2	2	0	1	29	Mid	
Install solar radar monitor (1 location)	4	2	1	2	4	4	2	2	1	2	2	1	1	5	1	34	Short	
Other Projects																		
Construct a 10-foot path on Azule Street alignment	3	0	0	1	1	2	2	2	2	2	2	2	2	0	1	22	Long	
Governance Center Pedestrian Landscaping Enhancements	1	2	0	2	4	3	2	2	1	1	2	2	1	5	1	29	Mid	
Construct sidewalk on Skill Center Road	4	2	0	2	3	1	2	2	2	2	2	2	2	5	1	32	Short	
Install solar radar monitor (2 locations) on Skill Center Road	4	2	0	2	3	3	2	2	1	2	2	2	2	5	1	33	Short	
Install street lighting on Skill Center Road	4	2	0	2	3	1	2	2	1	2	2	2	2	0	1	26	Short	
Install bus pads and shelters (6 locations)	3	2	0	2	3	2	2	2	1	2	2	2	2	0	2	27	Mid	
Pedestrian improvements at Pima St/Main Street intersection	4	0	0	2	3	1	2	2	2	2	2	2	2	0	1	25	Mid	

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Construct sidewalk on Sacaton Road, Casa Blanca Road to 0.3 miles north	1	2	1	2	4	1	2	2	2	2	2	2	2	0	1	26	Mid	

4 District 4

4.1 DISTRICT 4 STUDY AREA AND OVERVIEW

District 4 covers a large area spanning from the San Tan Mountains to just west of I-10. District 4 covers approximately 123 square miles and is divided into four villages. These villages are Upper Santan, Lower Santan, Stotonic, and the Goodyear. The study area is focused on the area near the District 4 Service Center, which is located on Santan Road. The streets that are the focus areas for this multimodal pedestrian safety study include the following BIA routes:

- Santan Road (Rte 68)
- Stotonic Road (Rte 127)

The street system in this area is shown in **Figure 4-1**.

4.1.1 DISTRICT 4 MASTER PLAN

The District 4 Master Plan identified the following key objectives and goals to provide a safe pedestrian and bicycle environment:

- Establish a network of sidewalks and/or pathways that connect the Service Center facilities to neighborhoods, specifically along Santan Road, Stotonic Road, Lower Santan Road, Pear Road, and Upper Santan Road.
- Establish a capital improvement fund to expand the network of sidewalks and/or pathways throughout the four villages.
- Develop standard design criteria for the placement of multi-use trails and sidewalks.
- Provide safe routes for pedestrian circulation between neighborhoods, schools, parks, and the Service Center to enhance the District's effort to create a sustainable environment and provide a healthy alternative to vehicular dependency.
- Develop a multi-use trail program with the adjacent Districts to ensure continuity for hiking, biking, and equestrian trails.
- Promote pedestrian safety by providing low-level lighting along sidewalks, specifically along Santan Road.
- Utilize striping to designate bike lanes on existing roadways as appropriate.
- Provide covered school bus stops with security lighting to keep children safe.
- Ensure all new projects include improvements that contribute to the trail network.

Figure 4-1: District 4 Study Area Roads

4.1.2 EXISTING LAND USE AND ACTIVITY CENTERS

Key land uses in the study area include the District 4 Service Center located on Santan Road. In the area behind the District Service Center is the District 4 Park, which includes children's play areas, ball fields, a walking trail, and areas for picnics. On Santan Road, between the District Service Center and Stotonic Road, residences are located primarily on the north side of the road. On Santan Road, east of Stotonic Road, residences are less dense, and are located on both sides of the street.

District 4 Park

On Stotonic Road, there is a church near Hill Top Drive, and some residences. Key activity centers are shown in **Figure 4-2.**

4.1.3 FUTURE PLANNED LAND USES AND PROJECTS

Based on discussion with District Service Center representatives and others, upcoming projects include:

- A street lighting project in District 4 (locations to be determined).
- A new Service Center, Immediately west of the existing Service Center. The time frame for construction of this service center is unknown.
- A Fire Station on the south side of Santan Road, across from the District 4 Service Center.
- A new Elderly Complex on the north side of Santan Road, east of Stotonic Road.

The District 4 Master Plan recommends a Reservation-wide trail system. In the study area, this trail is planned on sections of Stotonic Road and Santan Road as well as along the canal to the east of the study area. The proposed trail system in the eastern half of the Reservation is shown in **Figure 4-3.**

4.1.4 POPULATION LOCATION IN DISTRICT 4

Residential populations in this area are located primarily on Ho'I Street, Hawpal Street, and south of the canal. On Santan Road and Stotonic Road, residences are fairly low density. Population density, according to the 2010 Census, is shown graphically in **Figure 4-4**. The graphic shows the census block boundaries in red dashed lines. Because the census block boundaries to the north of Santan Road are rather large, the density appears lower than it actually is in this area.

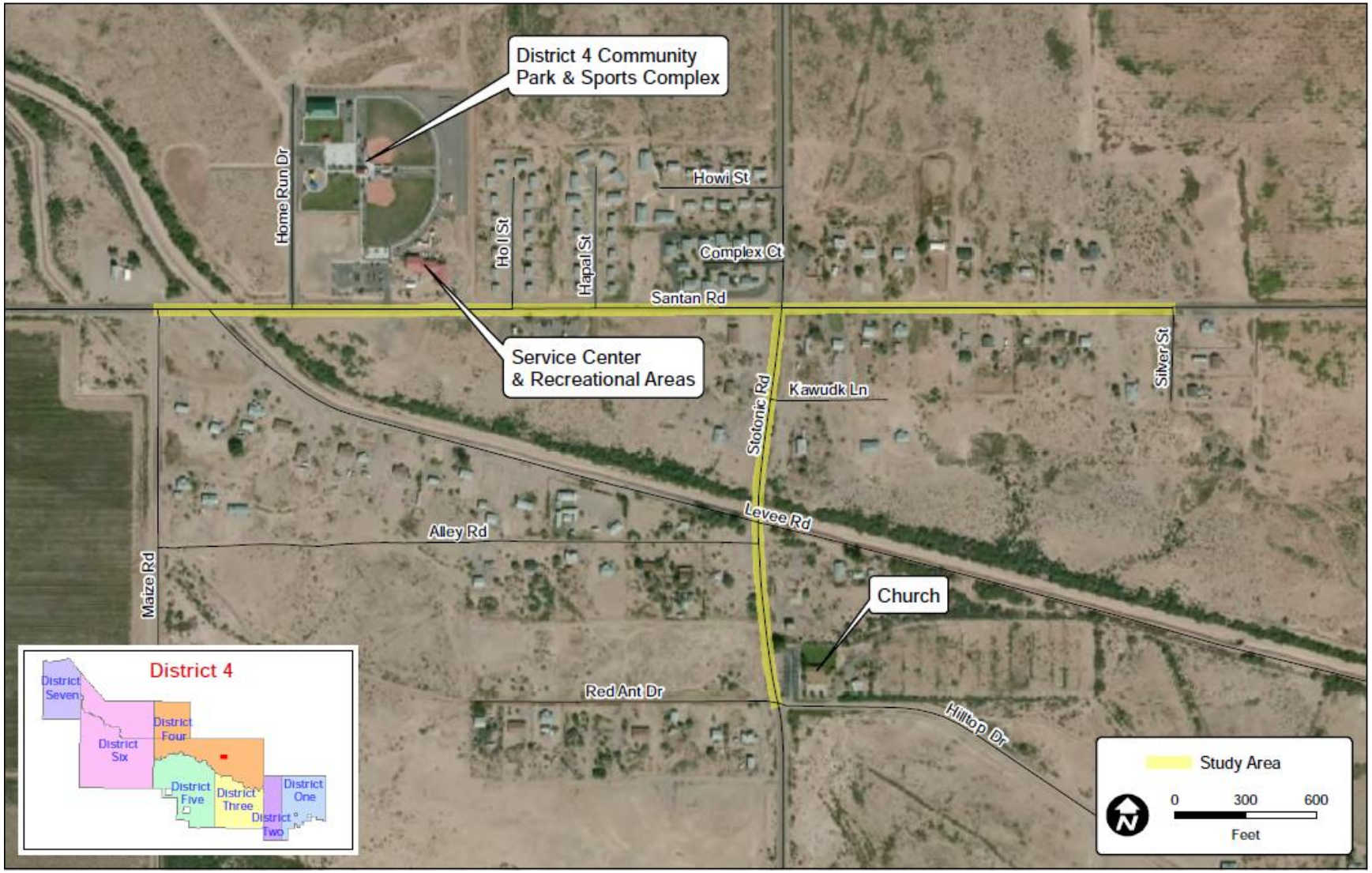
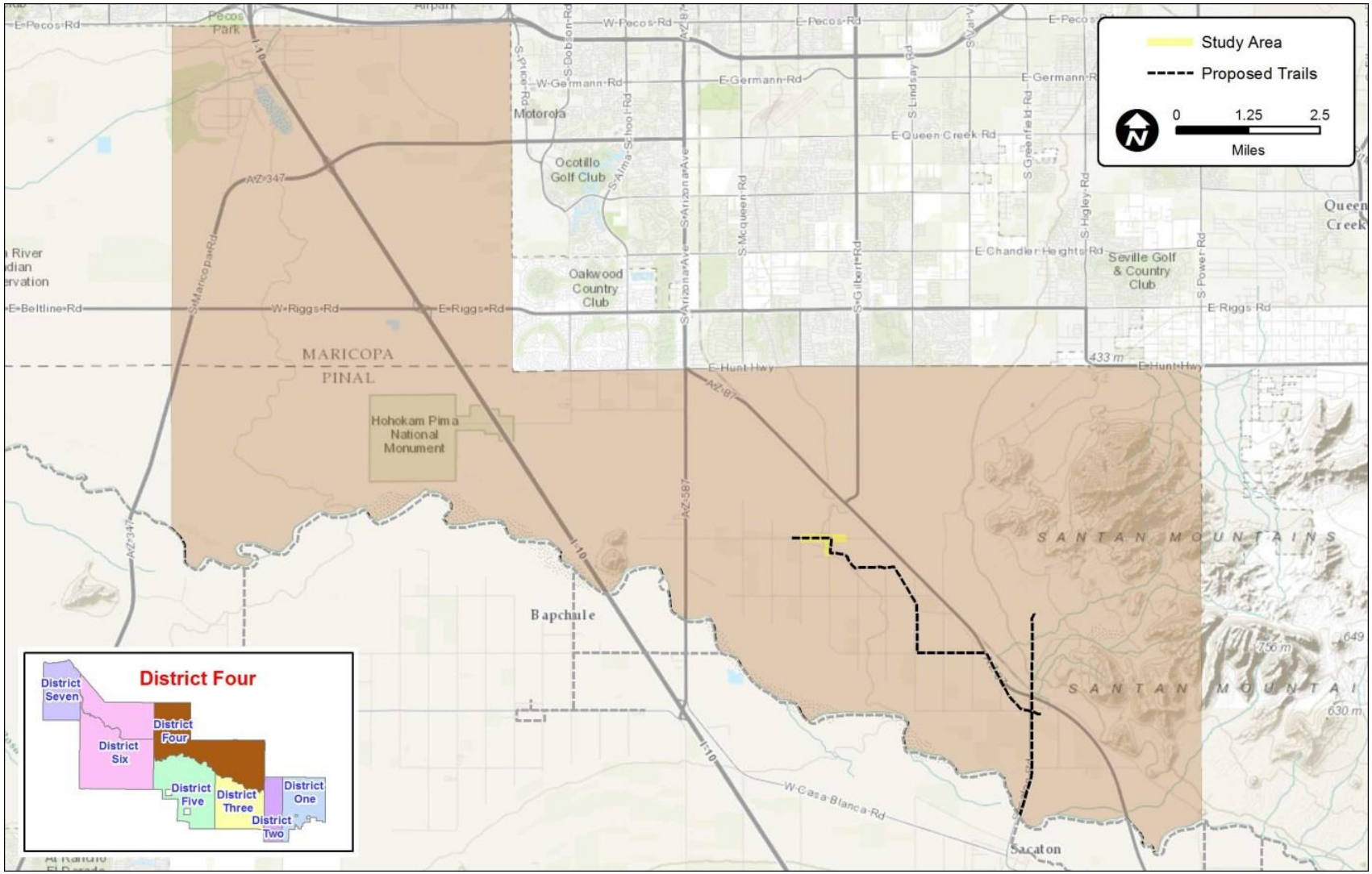


Figure 4-2: District 4 Activity Centers



Source: District 4 Master Plan

Figure 4-3: Proposed Reservation-Wide Trail System in District 4

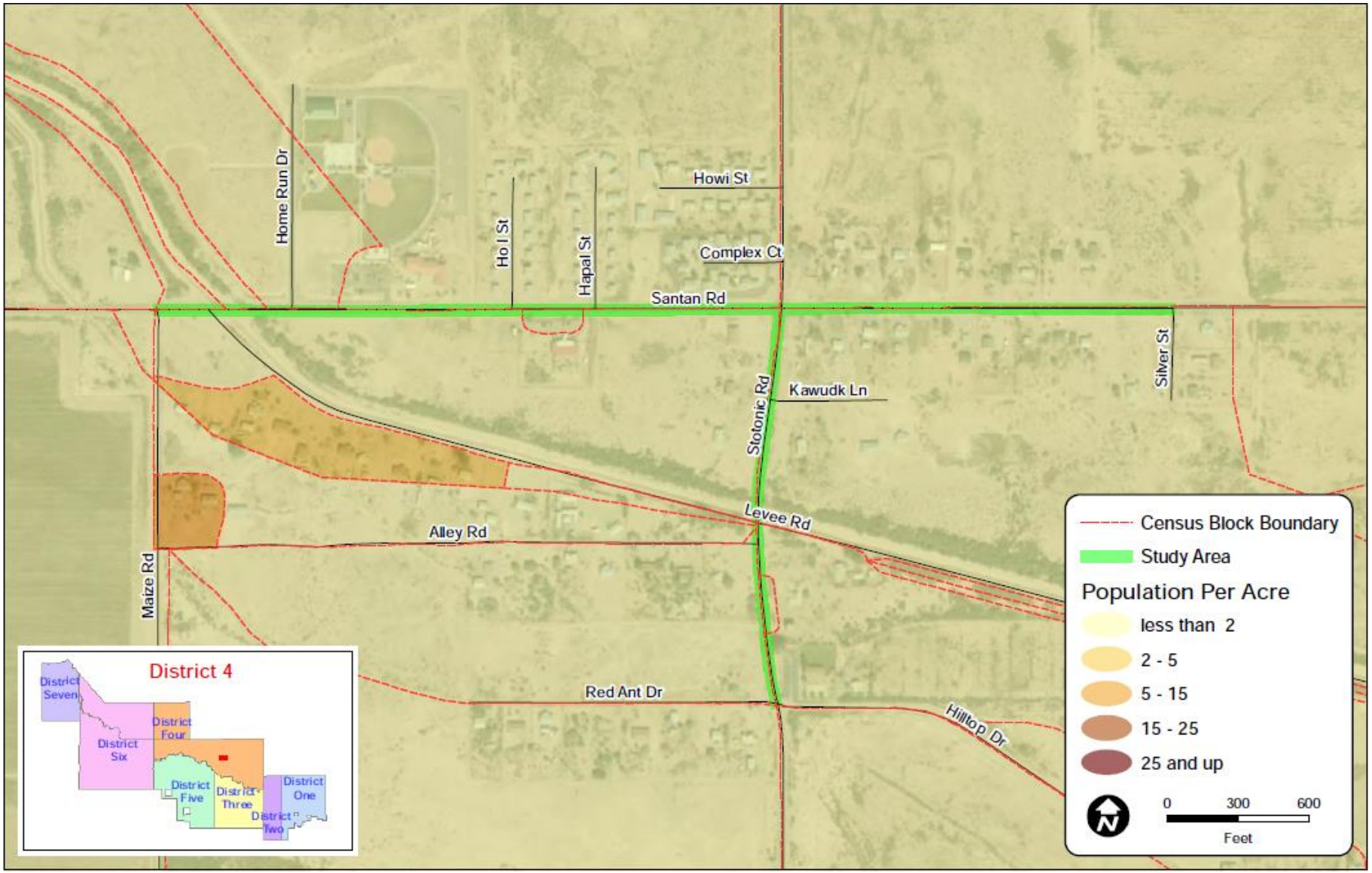


Figure 4-4: District 4 Population Location

4.2 EXISTING TRANSPORTATION CONDITIONS RELATING TO PEDESTRIANS AND BICYCLISTS

4.2.1 EXISTING STREET SYSTEM

Key roads in the study area are described below:

Santan Road (Rte 68) is a two-lane paved road with no shoulders. The most recent traffic count recorded in the Tribal Transportation Inventory is 1,100 vehicles per day (2014 count). Stop signs are located at the intersection of Santan Road and Stotonic Road. Pedestrians were observed crossing the street at this intersection, however, there are no crosswalks. An informal bus stop for high school students is also located at this intersection.

Stotonic Road (Rte 127) is a two-lane paved roadway with no shoulders. The most recent traffic count recorded was 585 vehicles per day (2003 count). It is estimated that this road carries approximately 700 vehicles per day in 2014, based on estimated growth in traffic of two percent per year.

4.2.2 PEDESTRIAN, BICYCLE, AND TRAFFIC COUNTS

Pedestrian, bicycle, and traffic counts were obtained at two locations during the peak hours of 4 to 6 p.m. These locations are:

- District 4 Service Center and Santan Road
- Intersection of Stotonic Road / Santan Road

A summary of these counts is provided in **Table 4-1**. Pedestrian crossings were relatively low at both locations.

4.2.3 LEVEL OF SERVICE

All roads in the study area operate on the A-C range, based on existing traffic volumes.

Table 4-1: 2014 Pedestrian, Bicycle, and Vehicle Counts

	NORTHBOUND				SOUTHBOUND			EASTBOUND			WESTBOUND		
Location	**Time period**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**
Stotonic Road/Santan Road	4-6 p.m.	48	2	0	73	0	0	82	1	0	54	1	0
District 4 Service Center/Santan Road	4-6 p.m.	0	0	0	10	4	0	58	0	0	71	1	0

Source: Traffic Counts taken May 13th, 2014

4.2.4 ACCESS MANAGEMENT

The project team reviewed the number of driveway openings and intersections on each of the study area roads to determine whether there may be opportunities to improve pedestrian safety through access management. A brief overview of access points on each road and access management considerations on each road is provided in **Table 4-2**.

Table 4-2: Access Characteristics on Study Area Roads

ROAD NAME	NUMBER OF DRIVEWAY OPENINGS	NUMBER OF INTERSECTING STREETS	ISSUES AND OPPORTUNITIES
Santan Road	north side 15 driveway openings south side 12 driveways	North side and south side- 1 intersection (Stotonic Road)	A canal crosses the road at the west perimeter of the study area. There may be an opportunity to provide a path connection along the canal. A path connection could reduce pedestrian travel on Santan Road.
Stotonic Road	west side 5 driveways east side 6 driveways	west side 3 intersections (Hill Top Rd, unnamed road south of Levee Rd and Levee Rd) east side 2 intersections (Hill Top Rd and Levee Rd).	Canal crossing on this road segment. There may be an opportunity to provide a path connection along the canal. A path connection could reduce pedestrian travel on Stotonic Road.

4.2.5 ROAD WIDTHS AND RIGHT-OF-WAY

Current road widths and right-of-way widths are summarized from Tribal Transportation Inventory as shown in **Table 4-3**.

Table 4-3: Roadway and Right-of-Way Widths

ROAD NAME	ROADWAY WIDTH (FEET)	RIGHT-OF-WAY WIDTH (FEET)
Santan Road	29	80
Stotonic Road	30	80

Source: Tribal Transportation Inventory

4.2.6 PLANNED ROAD IMPROVEMENT PROJECTS

The Tribal Transportation Improvement Program has a rubber chip seal project programmed on Santan Road in fiscal year 2018. The Gila River Indian Community Transportation Study does not identify any improvement projects for District 4; however, discussion with District 4 Service Center representative indicated that a street lighting installation project is planned with specific locations to be determined.

4.2.7 FUNCTIONAL CLASSIFICATION

Table 4-4 summarizes BIA roadway functional classifications in the Tribal Transportation Inventory for Santan Road and Stotonic Road.

Table 4-4: Tribal Transportation Inventory Functional Classification

DISTRICT 4 STUDY AREA ROADS	CLASS	DESCRIPTION
Santan Road (also called Sesame Road in the Tribal Transportation Inventory) Stotonic Road	5	Rural local road that is either a section line and/or stub type roads, make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. Also included are roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes.

Source: Tribal Transportation Inventory

4.2.8 PAVEMENT CONDITIONS

Pavement conditions for study area roads are summarized in **Table 4-5**.

Table 4-5: Pavement Conditions

ROAD NAME	ROADBED CONDITION CODE IN THE TRIBAL TRANSPORTATION INVENTORY	DESCRIPTION OF PAVEMENT CONDITIONS, BASED ON REVIEW OF AERIALS
Santan Road (Rte 68)	4- A designed and constructed roadbed with some drainage and alignment improvements required	Road observed to have patching of cracked areas
Stotonic Road (Rte 127)	5- A roadbed constructed to adequate standards with good horizontal and vertical alignment and proper drainage	Some medium alligator cracking and longitudinal cracking

Source: Tribal Transportation Inventory and visual inspection

4.2.9 EXISTING SIDEWALKS AND CROSSWALKS

As shown in **Figure 4-5**, pedestrian facilities are limited to two crosswalks in the study area, which are located at the intersections of Santan Road/Ho'I Street and Santan Road/Hawpal Street. No sidewalks are currently present in the study area or on the roads adjacent to the study area. Although well signed, the crosswalks are not high-visibility crosswalks and there are also no marked crosswalks at the intersection of Santan Road and Stotonic Road**.**

4.2.10 EXISTING STREET LIGHTING

Street lighting is limited in the study area and is located at intersection areas such as Santan Road/Ho'I Street and Santan Road/Hawpal Street. Existing street lighting is shown in the pedestrian needs map in **Figure 4-7**.

4.2.11 CRASH DATA

ADOT crash data has been obtained and analyzed for pedestrian and bicycle crashes within the Gila River Indian Reservation. The crash data spanned a five-year period from January 1, 2009 to February 4, 2014. The crash data shows that there has been no pedestrian- or bicycle-related crashes within the District 4 study area.

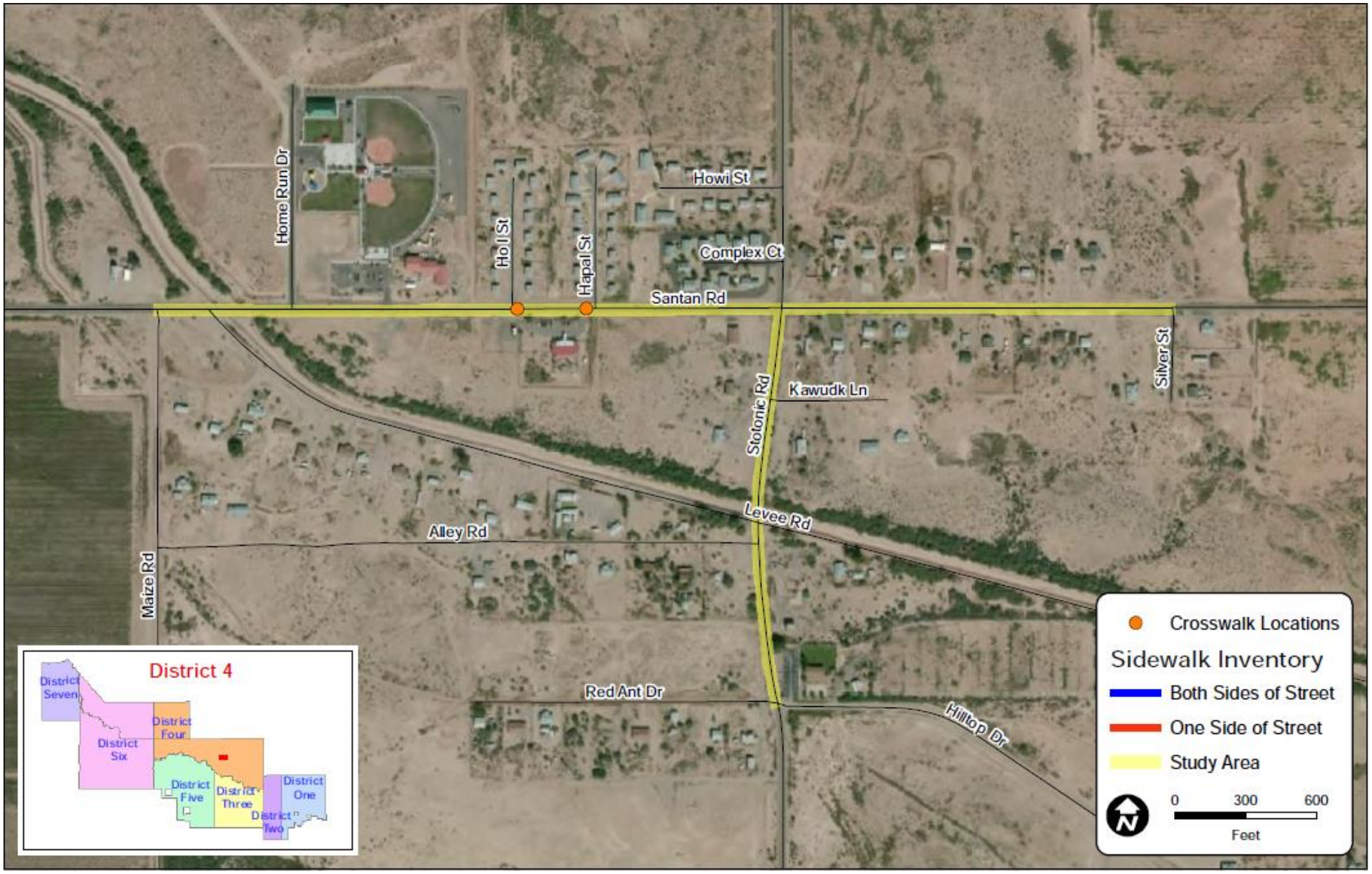


Figure 4-5: District 4 Sidewalks

4.2.12 TRANSIT AND SCHOOL BUS ROUTES AND STOPS

There is no public transportation in the study area. School bus stops can vary from year to year and many of the school district transportation staff indicated that the bus drivers mainly pick up at individual homes. However, a review has been made of bus pickup schedules (where available) and intersection locations where school bus stops occurred are noted as follows:

Coolidge School District bus stops that are not associated with specific homes are located:

- Santan Rd and Hoi Rd
- Stotonic Rd and Santan Rd – southeast corner. The bus stop is on Stotonic Road.

Comments on school bus stop needed were:

- At the intersection of Stotonic Rd and Santan Rd parents drop their children off at the stop, and cars can be parked there. Extra room is needed at this location.

Sacaton School District bus stops that are not associated with specific homes are located:

- Stotonic Rd / LDS Church
- Stotonic Rd/ south of Santan Rd

The Casa Blanca School District also picks up students in this area but indicated that drivers just pick up at individual homes.

4.3 DRAINAGE AND ENVIRONMENTAL CONDITIONS

4.3.1 CHARACTERISTICS OF THE PHYSICAL, NATURAL, AND CULTURAL ENVIRONMENTS

Biological Resources

The District 4 study area is within the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community. Based on a review of the U.S. Fish and Wildlife Service Threatened and Endangered Species Natural Resources List and aerial photos, it has been determined that there is no suitable habitat for threatened or endangered species in the study area. However, the study area may provide suitable habitat for two candidate species (Sonoran Desert tortoise and Tucson shovel-nosed snake). If there is a federal nexus (federal funding, Section 404 permitting, etc.) then improvements identified in this study will require a biological evaluation by a qualified biologist during the environmental clearance process.

Section 404/401 of the Clean Water Act

Based on the review of aerial photography, there are no natural washes that could be considered Waters of the United States under the jurisdiction of the Army Corps of Engineers within the study area; however, it is recommended that this be reevaluated as recommended improvement projects are designed.

Hazardous Materials

The U.S. EPA Envirofacts website has been reviewed for Environmental Protection Agency-regulated facilities in the study area. There are no facilities within the study area and the facilities in the vicinity of the study area are 1) of sufficient distance and/or down-gradient from the project area as to not

pose an environmental concern; 2) do not have violations; or 3) have completed remediation/compliance.

Cultural Resources

Seven previous archaeological surveys have been conducted within the study area of District 4. The study area has been surveyed with the exception of 1.20 acres along Stotonic Road and Santan Road. Two archaeological sites and four historically documented cultural resources have been recorded within this area. Additional survey of the 1.20 acres that have not previously been surveyed and consultation with the Gila River Indian Community will need to occur when an individual project is at the 30% design plan stage.

4.3.2 DRAINAGE ISSUES AND FLOODING

Drainage infrastructure on study area roads is shown in **Figure 4-6.** It should be noted that flooding, ponding, and sheet flows is a natural occurrence during every rain storm, and is a major problem for the walking community and especially those that do not have transportation, such as the elderly, handicapped, and children. A brief overview of drainage conditions on study area roads is provided as follows.

Lower Santan Road (Rte 68) is a two-lane paved road with no shoulders, curb and gutter, or sidewalks on either side of the road. Minor graded ditches or swales are located on either side of the roadway. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. There are no known cross drainage culvert crossings of Lower Santan Road. One irrigation canal culvert crossing is located at the western end of the road. It has been noted that flooding has occurred in the past at the District 4 Service Center. Culverts are provided at several driveway entrances to the Service Center.

Stotonic Road (Rte 127) is a two-lane paved roadway with no shoulders, curb and gutter, or sidewalks on either side of the road. Minor graded ditches or swales are located on either side of the roadway. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. There are no known cross drainage culvert crossings of Stotonic Road. One irrigation canal culvert crossing is located on Stotonic Road.

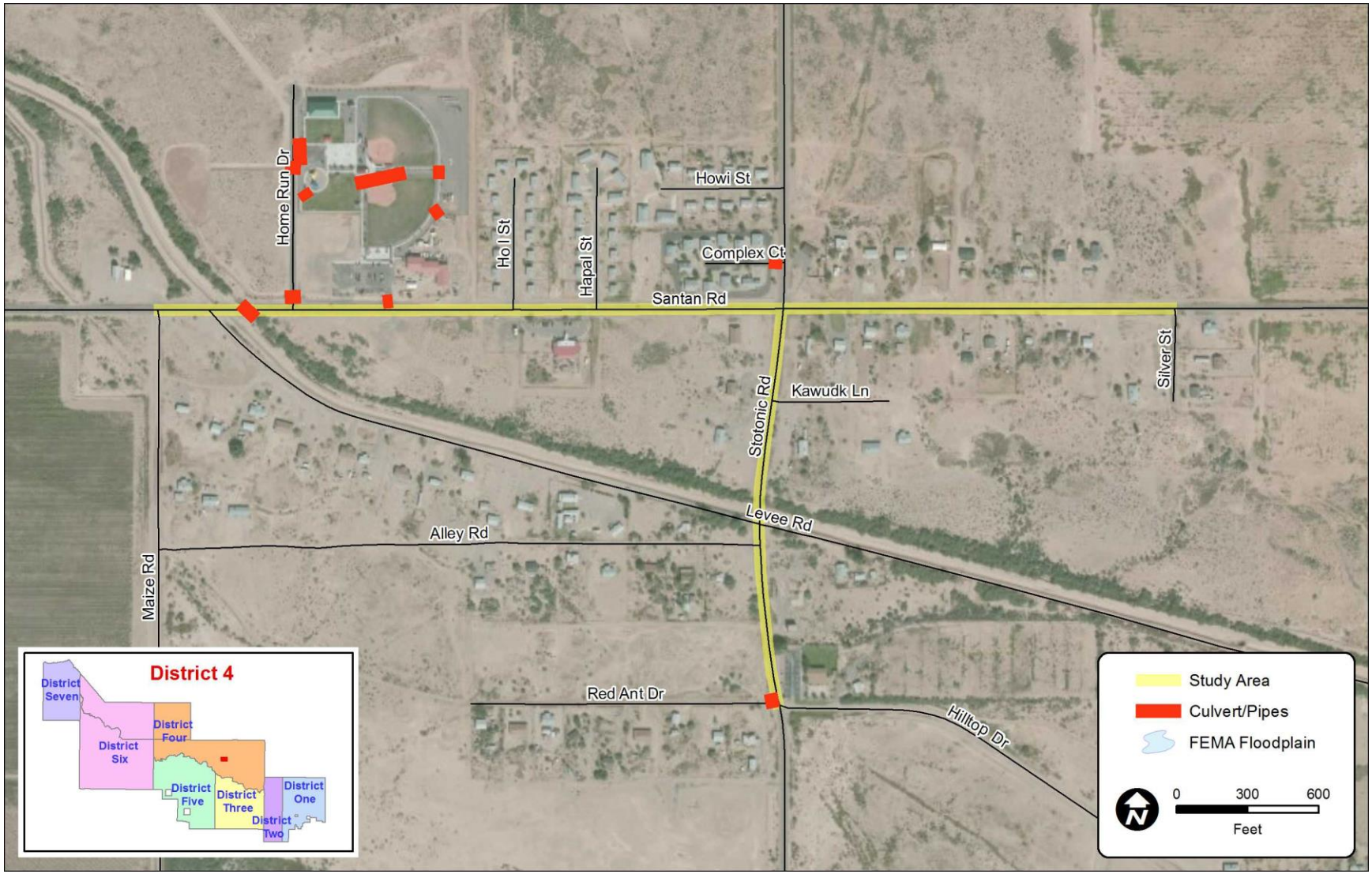


Figure 4-6: District 4 Drainage Infrastructure

4.4 SUMMARY OF PEDESTRIAN SAFETY NEEDS IN DISTRICT 4

Pedestrian safety needs are shown graphically in **Figure 4-7**. Pedestrian safety needs were identified through a process which includes extensive public outreach, input from stakeholders, analysis of crash data and road conditions, and analysis of how pedestrian facilities will link residents to activity centers, such as schools, parks, Multipurpose Centers and Service Centers.

Key needs for the study area roads include the following:

Santan Road

- The speed transitions from 55 to 45 to 35 mph in a short period of time. Concerns exist about speeding and truck traffic on this road, even though there are signs regarding the school speed zone and noting that trucks are prohibited in this area.
- Sidewalks are needed on the north side of Santan Road between Stotonic Road and Maize Road.
- Sidewalks or a multi-use path is needed on both sides of Santan Road between Stotonic Road and approximately Silver Street.
- More street lighting is needed at the intersection of Stotonic Road/ Santan Road and along Santan Road in general.

Santan Road/Stotonic Road

- Crosswalks and advance signing are needed on the east and west legs of the intersection.
- Sidewalks on Stotonic Road immediately north of Santan Road are needed to provide a pedestrian connection to the Elderly Housing area.

Stotonic Road

- Speed control is needed on Stotonic Road.
- Multi-use paths are needed on Stotonic Road between Santan Road and Levee Road.

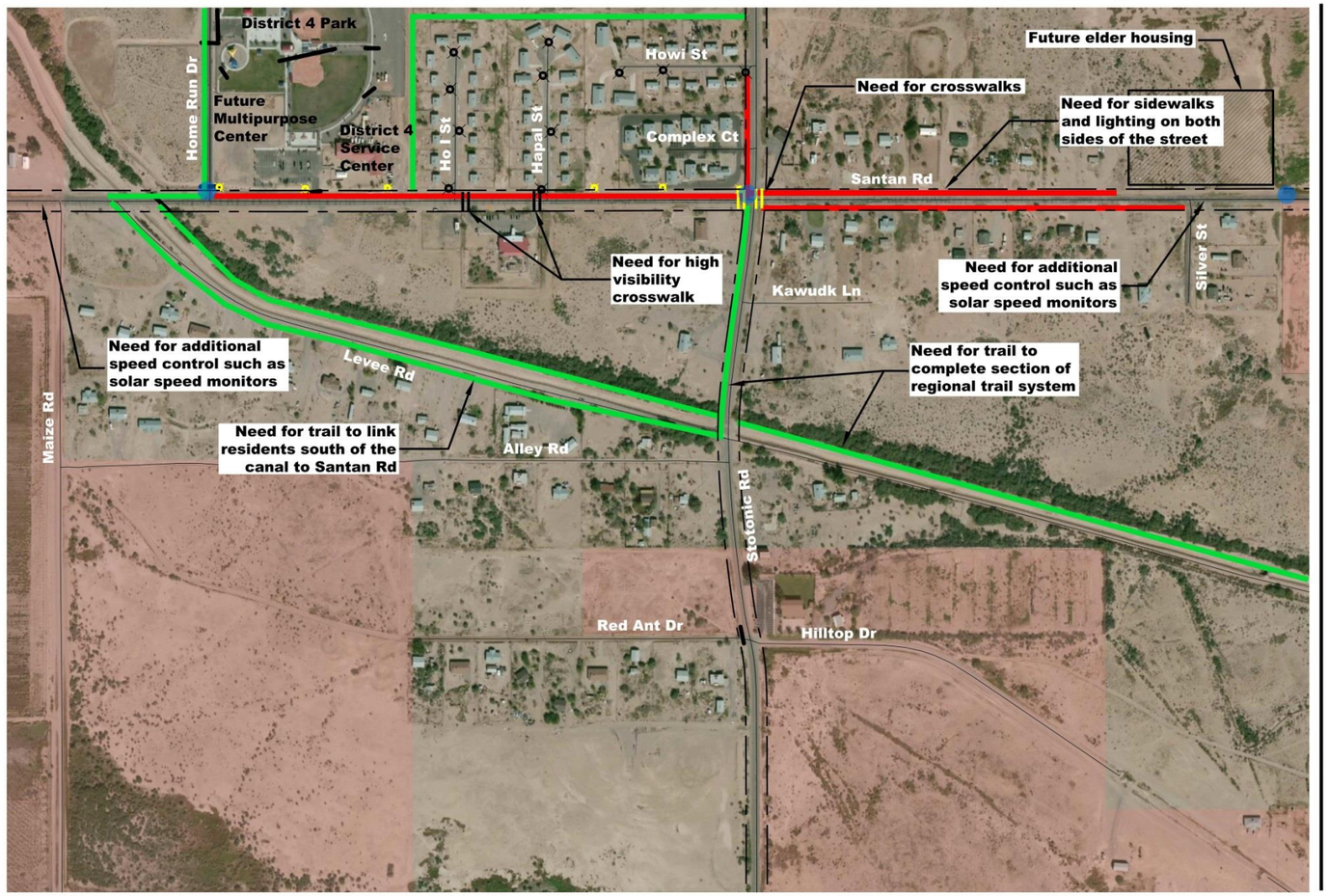
Drainage Needs

- Curb and gutter at new sidewalk locations are needed to keep pavement drainage off sidewalks.
- New or improved culvert locations are needed at cross drainages and at existing culvert locations to improve the drainage crossings so that pedestrians can walk more easily.

Other Needs

- Multi-use paths along the canal, per Reservation-wide Trail Plan in the District Master Plan.
- Multi-use paths or trails behind the ball field/park area to connect to neighborhood areas to the east.

Sidewalk placement on Santan Road will need to consider existing drainage culvert locations. This is a view of Santan Road, looking west, at the District 4 Service Center.



District 4 Study Area

LEGEND

Existing Infrastructure

- Crosswalk Locations
- Street Lighting
- Culverts and Pipes
- Existing Right of Way
- GRIC Allotments

Recommended Pedestrian Needs

- Trail or Multi-use Path
- Sidewalk with Curb and Gutter
- Street Light
- Crosswalk
- New or Improved Culvert

N
W E
S

Note: Symbols are schematic only (not to scale)

Figure 4-7: District 4 Pedestrian Needs

4.5 RECOMMENDED IMPROVEMENTS TO MEET IDENTIFIED NEEDS

A program of improvements has been developed to address pedestrian safety needs. An overview of the projects is presented in **Figure 4-8**. Following this table are project information sheets describing recommended improvement projects on each roadway. These improvement projects are summarized in **Table 4-6**.

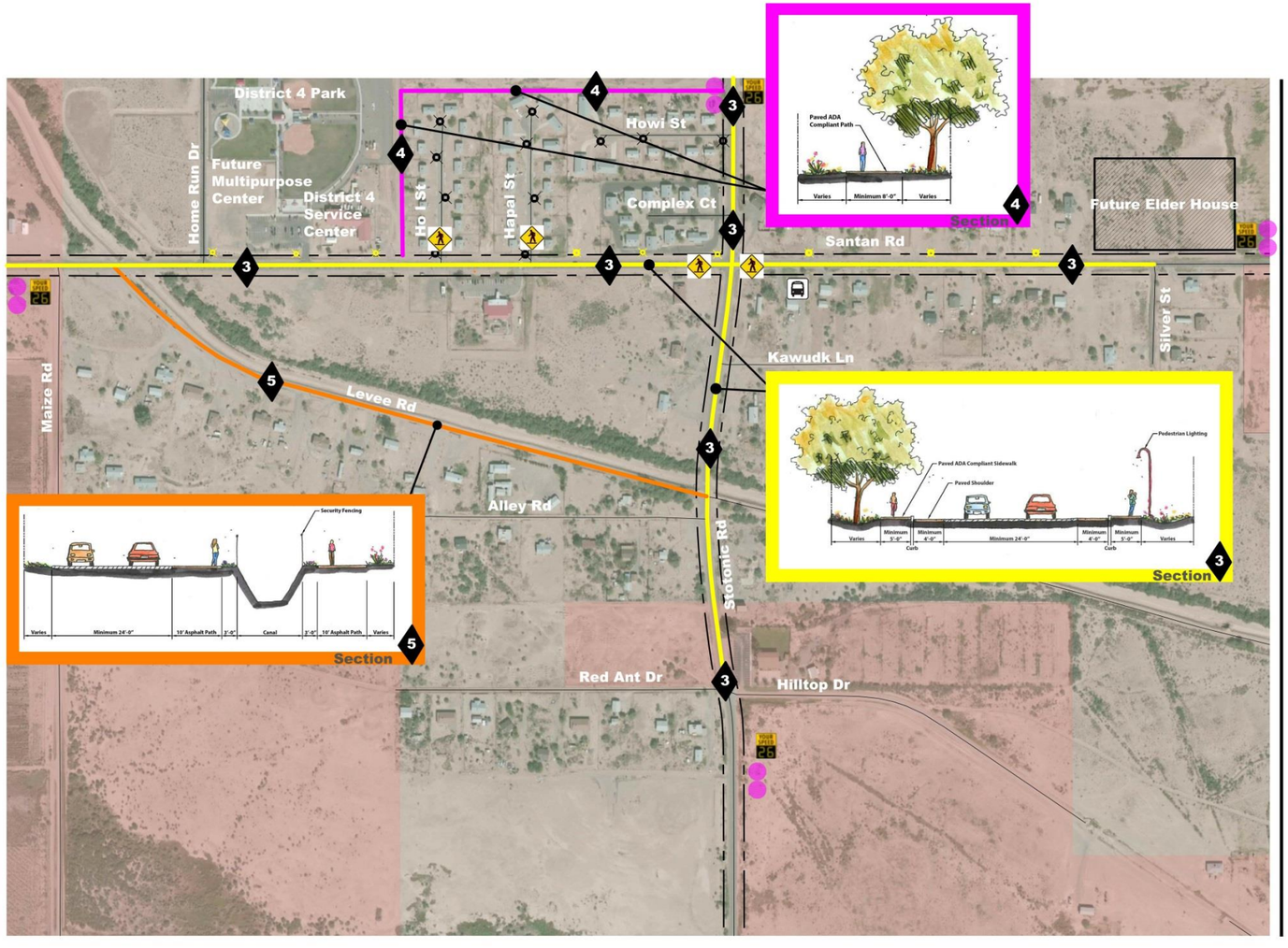
4.5.1 STUDENT PEDESTRIAN SAFETY

One emphasis of the study has been the identification of pedestrian safety improvements to improve safety for school children. This included the identification of potential school bus stop locations. These were reviewed based on discussions with school transportation providers and the Tribal Youth Council. One potential location for a school bus stop has been identified at the intersection of Santan Road and Stotonic Road. More coordination is needed with school districts to verify if this is a long term school bus stop location. Provision of sidewalks, speed control, and additional street lighting will provide a safer travel environment for residents and children.

4.5.2 ACCESS MANAGEMENT TECHNIQUES FOR PEDESTRIAN SAFETY

As further development occurs in the Community, access management techniques can be used to help improve pedestrian safety. Examples of access management techniques are:

- Reducing the number of driveways, within a given distance (per block or mile) through provisions of frontage roads and closing multiple driveways that serve one location.
- Providing greater separation between driveways.
- Providing a safe refuge for pedestrian crossings with raised medians.
- Providing right-turn lanes for high-volume driveways.
- Constructing a landscaped or other clearly marked buffer helps to visually define sidewalk and driveway locations.
- Providing a clear zone free of visual obstructions such as signs, large trees and bushes, or parked vehicles, which will allow pedestrians to be seen by drivers and to see oncoming vehicles.



District 4 Study Area

LEGEND

Existing Infrastructure

- Sidewalk
- Existing Right of Way
- GRIC Allotments

Recommended Pedestrian Safety Improvements

- Install Street Light
- Install Standard Crosswalk Striping at Stop Sign
- Install Speed Monitors
- Construct Bus Stop/Shelter
- Install Gateway Signage

N
W E
S

Note: Symbols are schematic only (not to scale)

Figure 4-8: District 4 Recommended Pedestrian Safety Improvements

Table 4-6: District 4 Recommended Pedestrian Safety Improvement Projects

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $) *	COMMENTS
Santan Road (Route 68)				
Construct sidewalk with shoulders and curbs on both sides of the road	Maize Road to Silver Road	0.82	Asphalt – 820,000 Concrete – 1,015,000	Costs include sidewalk paving option (asphalt or concrete), curbing, and miscellaneous signing. It includes one pipe replaced and relocated to the north to accommodate the ditch, one pipe extension, and one canal siphon pipe extension. There are potential utility conflicts.
Construct street lighting	Maize Road to Silver Road	0.82	260,000	Assumes solar lighting at 200- foot spacing.
Stripe crosswalk at stop sign controlled intersection at Stotonic Road	Santan Road/Stotonic Road	N/A	1000	
Install gateway signing, 2 locations	Maize Road to Silver Road		3,000	Locate at beginning and end of road segment.
Install radar speed monitors, 2 locations	Maize Road to Silver Road	N/A	15,000	Locate at beginning and end of road segment.
Construct bus pad and shelter,1 location	Santan Road/Stotonic Road intersection		11,000	Coordination with area high schools needed. Right-of-way may be required to construct the pad. The pad is assumed to 200 square feet.
Stotonic Road (Route 127)				
Construct sidewalk with shoulder and curbs on both sides of the road.	Hilltop Road to Howi Street	0.41	Asphalt – 465,000 Concrete – 570,000	Costs include sidewalk paving option (asphalt or concrete), curbing, and miscellaneous signing. It also includes one box culvert extension, one

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $) *	COMMENTS
				drainage pipe replaced and relocated to the west and one new drainage pipe. Two new ditches are assumed. There are potential utility conflicts.
Install gateway signing, 2 locations	Hilltop Road to Howi Street	N/A	3,000	Locate at north and south ends of road segment, prior to entering developed area of Community.
Install radar speed monitors,2 locations	Hilltop Road to Howi Street	N/A	15,000	Locate at north and south ends of road segment, prior to entering developed area of Community.
Canal path, Stotonic Road to Santan Road				
Construct 10- foot canal path on both sides of canal	Stotonic Road to Santan Rd	0.47	Asphalt – 149,000 Concrete – 429,000	Costs include grading for path, paving option and miscellaneous signing. This path would need concurrence from the San Carlos Irrigation Project. Additional infrastructure by the canal is not supported by the Gila River Indian Community Department of Transportation.
Other Projects				
Construct path on one side of street	Santan Road to Stotonic Road (using alignment north of Hoi Street and Hapal Street)	0.37	Stabilized decomposed granite – 35,000 Asphalt – 60,000 Concrete – 173,000	Costs include grading for path, paving option and miscellaneous signing. It includes one new pipe to provide improved drainage.

*Note: costs are based on 2014 estimated costs and include a 30% contingency to account for mobilization (8%), miscellaneous work (12%), construction surveying and layout (2%), erosion control (1%), contractor quality control (2%), furnish water supply (1%), and maintenance and protection of traffic (4%). See **Appendix B** for further information regarding recommended drainage improvements.

Project Information Sheet – Santan Road (Rte 68)

Project Name	Santan Road Pedestrian Safety Improvements		
Project Location	Santan Road, Maize Road to Silver Street (0.81 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Path: Construct sidewalk with shoulders and curbs on both sides of the street.		
	Drainage Improvements: It includes one pipe replaced and relocated to the north to accommodate the ditch, one pipe extension, and one canal siphon pipe extension.		
	Lighting: Construct solar street lighting.		
	Crosswalks: Provide north-south crosswalks at stop signs at Stotonic Road intersection.		
	Traffic Calming: Provide gateway signs. Implement speed control devices such as portable radar signs. Provide speed enforcement periodically.		
	School Bus Stop Provide school bus stop pad and shelter at the Santan Road/Stotonic Road intersection.		
Project Justification	Santan Road is a rural major collector road which carries 1,200 to 1,300 vehicles per day. Sidewalks and pedestrian facilities are needed on Santan Road to provide safer access to the District 4 Service Center, the park located behind the District 4 Service Center, the Head Start, and residences. In the future, elder housing is planned at the east end of the study area, near Silver Street.		
Cost Estimate	See Table 4-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program, Indian Community Development Block Grant Program. More potential funding sources are provided in Table 10-1.		
Comments	There are potential utility conflicts.		

Head Start School Crosswalk on Santan Road

Intersection of Santan Road and Stotonic Road

Project Information Sheet – Stotonic Road (Rte 127)

Project Name	Stotonic Road Pedestrian Safety Improvements		
Project Location	Stotonic Road, Levee Road to Howie Street (0.27 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Paths: Construct sidewalk with curb and gutter.		
	Drainage Improvements: The project would include one box culvert extension, one drainage pipe replacement and relocation (to the west) and one new drainage pipe. Two new ditches are assumed.		
	Traffic Calming: Install gateway signing. Install radar speed monitors. Provide periodic speed enforcement.		
Project Justification	Stotonic Road is a rural major collector road that carries approximately 600-700 vehicles per day. North of Santan Road, pedestrian paths will serve the elder complex and neighborhood area. South of Santan Road, creation of a path area will provide a walking area that connects residences to the District 4 Service Center.		
Cost Estimate	See Table 4-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	There are potential utility conflicts.		

Stotonic Road looking north

Project Information Sheet - Canal Path

Project Name	Canal Path Pedestrian Safety Improvements		
Project Location	Canal Path – Stotonic Road to Santan Road (miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☐	Gravel ☐	Dirt ☒
Project Description	**Project Components**		
	Sidewalk and Paths: Provide a pedestrian path on both sides of the canal where possible as space allows.		
	Drainage Improvements:		
	Lighting: Possible pedestrian scale lighting.		
Project Justification	This project would provide a path to connect neighborhoods south of Levee Road to Santan Road.		
Cost Estimate	See Table 4-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	Canal trails are not encouraged by the Pima – Maricopa Irrigation Districts or the BIA Irrigation District. Implementation of a path in this area would likely require continuing coordination with these agencies.		

Canal, view from Stotonic Road

4.6 IMPROVEMENT PROJECT PRIORITIZATION

The transportation improvement projects will address critical pedestrian and bicycle needs. A matrix has been developed to assign the priorities for various improvement project elements into short, mid- or long range time frames. The prioritization is summarized in **Table 4-7**. However, as funding becomes available, or priorities change, these projects can be re-prioritized.

Table 4-7: District 4 Pedestrian Safety Improvements Prioritization

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Santan Road, Maize Road to Silver Road																		
Construct curbed 6-foot path on both sides of the road	3	2	0	2	4	1	2	2	2	2	2	2	2	0	1	27	Mid	Potential utility conflicts
Construct street lighting	3	2	0	2	4	1	2	2	1	2	2	2	2	5	2	32	Short	May be included in a District lighting project.
Stripe crosswalk at stop signs at Santan Road / Stotonic Rd	3	2	0	2	4	5	2	2	1	2	2	2	2	5	1	35	Short	
Install gateway signing (2 locations)	3	2	0	2	4	4	1	2	1	2	1	1	1	5	1	30	Short	
Install radar speed monitors (2 locations)	3	2	0	2	4	3	2	2	1	2	2	1	1	5	1	31	Short	
Construct bus pad and shelter (1 location)	3	2	0	2	4	4	2	2	1	2	2	1	2	0	1	28	Mid	Coordination needed with school districts.

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Stotonic Road, Hilltop Drive to Howi Street																		
Construct curbed sidewalk and shoulder on both sides of street	3	2	0	2	3	1	2	2	2	2	2	2	2	0	1	26	Mid	
Install gateway signing (1 location)	3	2	0	2	3	4	1	2	1	2	2	1	1	5	1	30	Short	
Install radar speed monitors (1 location)	3	2	0	2	3	3	2	2	1	2	2	1	1	5	1	30	Short	
Canal path																		
Construct 10-foot canal path on both sides of canal	3	2	0	1	1	1	2	2	1	2	2	2	2	0	1	22	Long	
Other projects																		
Construct 10 foot path, Santan Road to Stotonic Road	3	2	0	1	1	1	2	2	2	2	2	2	2	0	1	23	Long	

5 District 5

5.1 DISTRICT 5 STUDY AREA AND OVERVIEW

District 5 is roughly 99 square miles and is known as Casa Blanca or by the O'odham word as Vah ki, which translates into English as "House that goes into the ground." The District comprises six village areas: Sweet Water, Bapchule, South Casa Blanca, West Casa Blanca, Sacate, and Wet Camp. The study area roads are located in the Bapchule village area. The streets that are the focus areas of this study in District 5 include the following BIA routes:

- Preschool Road (Rte 109)
- Orchard Road (Rte 107)
- Wren Street (Rte 366)
- South Falcon Court (Route 206)
- Eagle Court (Route 206)

The street system is shown in **Figure 5-1**.

5.1.1 DISTRICT 5 MASTER PLAN

Key goals in the District 5 Master Plan relating to the objective of providing a safe environment for pedestrians and bicyclists include the following:

- Establish a network of sidewalks and/or pathways that connect public facilities and activity areas.
- Support development of a multi-use trail system that connects to the proposed Reservation-wide trail.
- Support development of an off-roadway trail along Casa Blanca Road.
- Utilize striping to designate bike lanes on existing roadways as appropriate.
- Provide covered school bus stops.

Another key issue emphasized in the Plan is the need for street lighting at key intersections; however, the lighting must be balanced with the ability to see the night skies and stars.

5.1.2 EXISTING LAND USE AND ACTIVITY CENTERS

The District 5 study area includes primarily residential, school, and public land uses. A new Multipurpose Center in District 5 opened in 2013, and is located at the northwest corner of Casa Blanca Road and Preschool Road. Residential areas are located primarily on either side of Wren Road (approximately 20 homes), as well as low-density residential on Orchard Road and Preschool Road.

The Casa Blanca Community School is located on Casa Blanca Road, and the Ira Hayes High School is located on Preschool Road. There is an Emergency Medical Service facility on Orchard Road, south of Casa Blanca Road. Activity centers are shown in **Figure 5-2**.

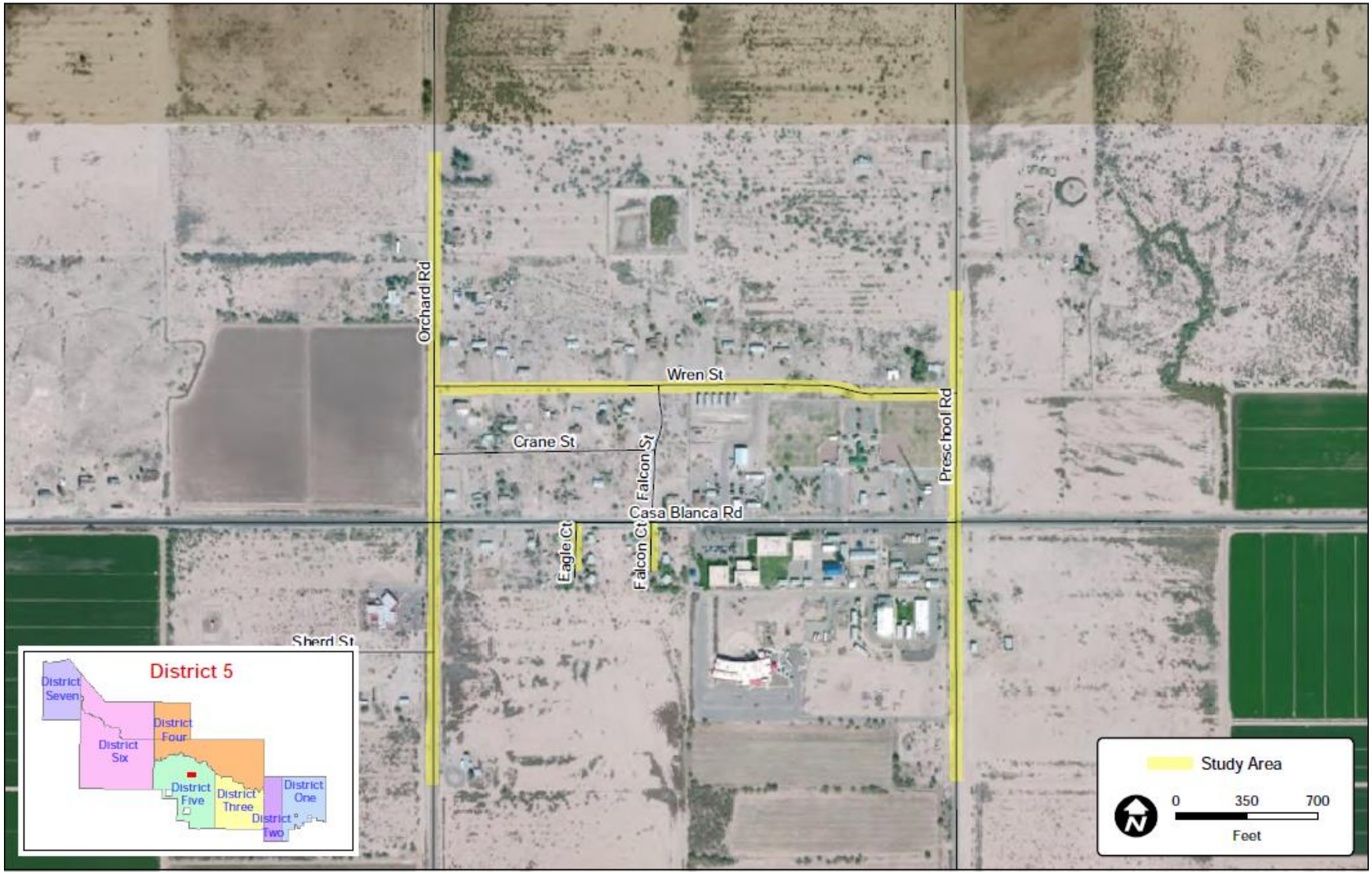


Figure 5-1: District 5 Study Area Roads

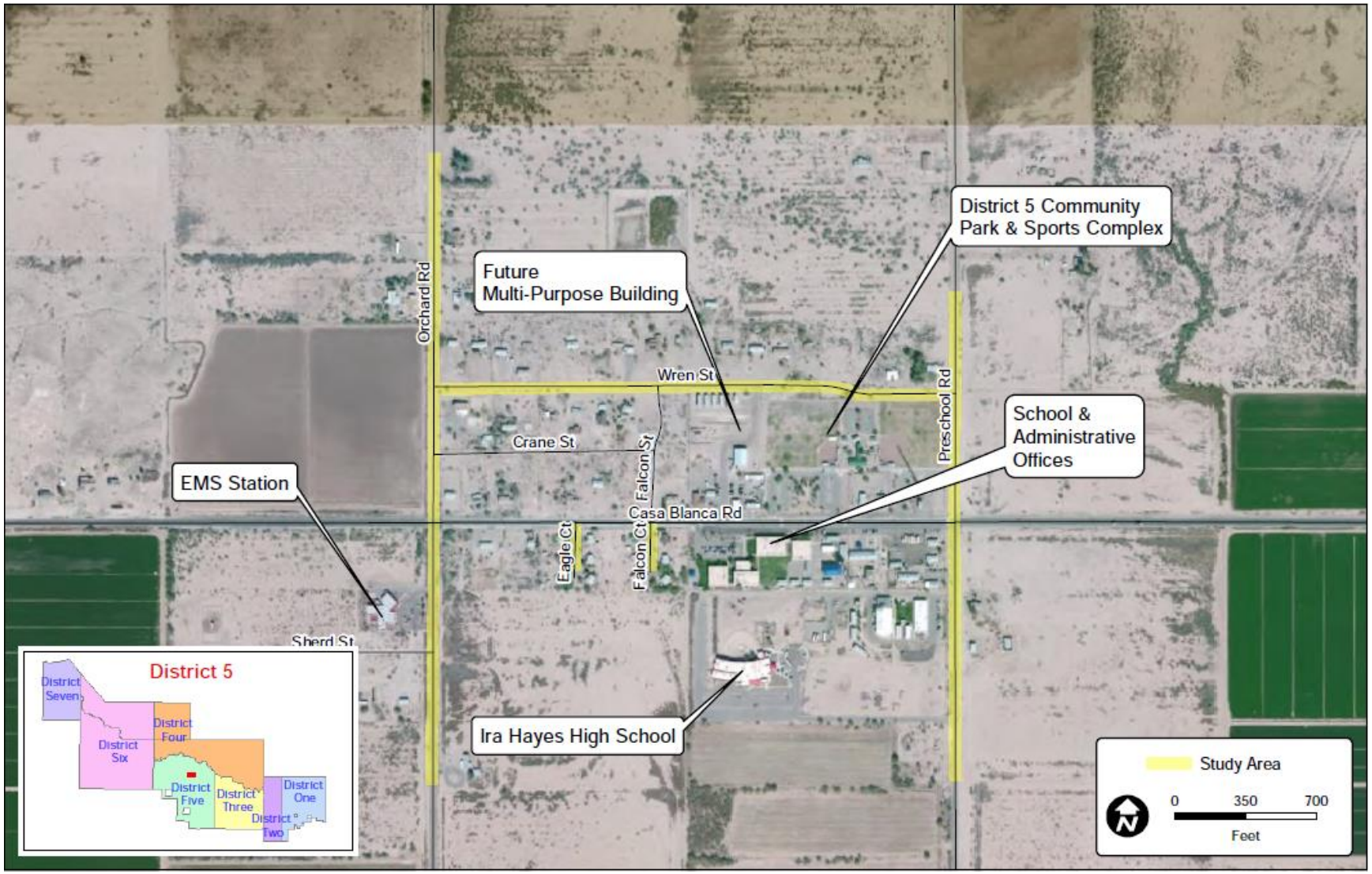


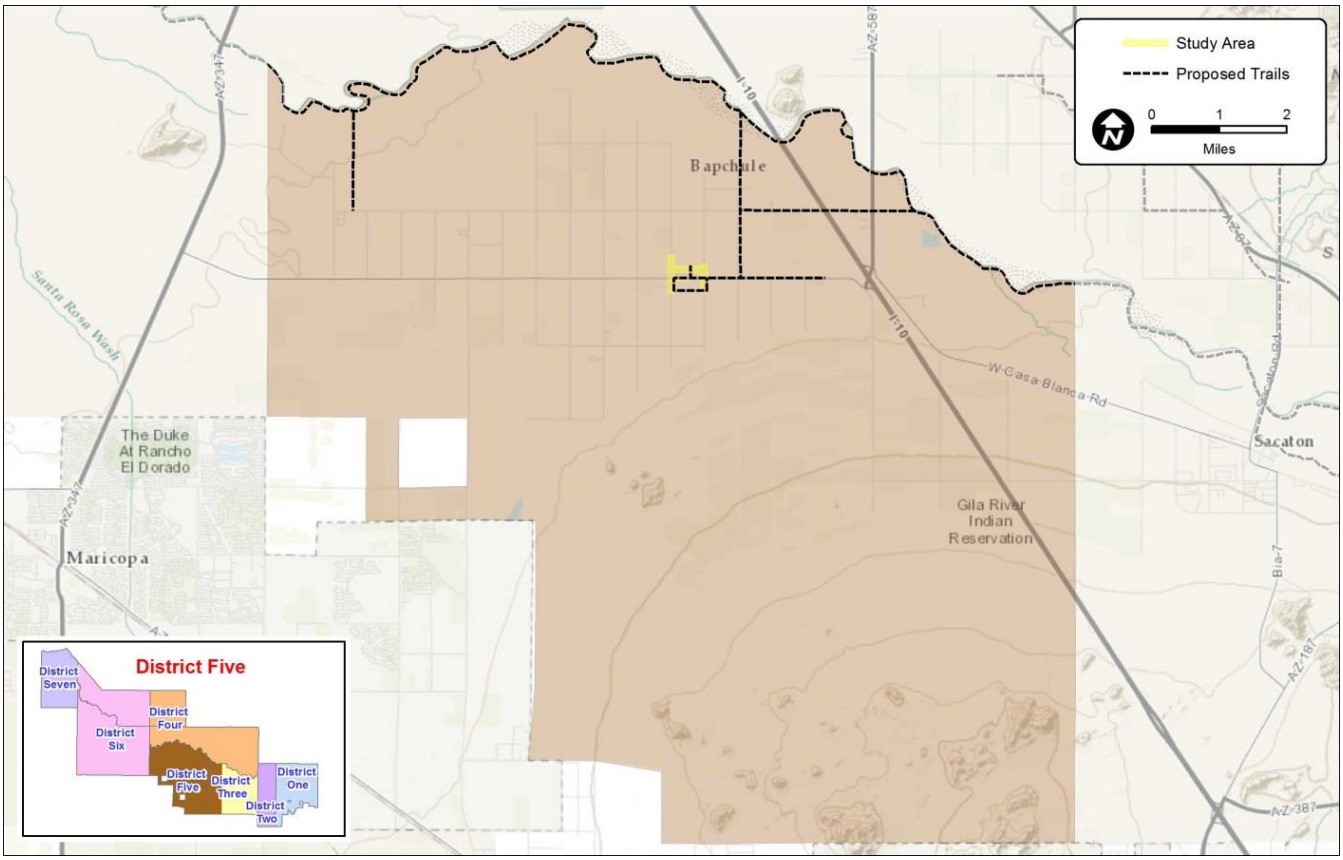
Figure 5-2: District 5 Activity Centers

5.1.3 FUTURE PLANNED LAND USE AND ACTIVITY CENTERS

The District 5 Master Plan refers to a proposed Reservation-wide trail system. In District 5 (within the study area), the proposed trail system is located on Casa Blanca Road from approximately Snakehill Road (east of the study area) to Orchard Road. A loop runs south on Orchard Road to a canal, then east along the canal to Preschool Road, then north to Casas Blanca Road. The trail system in the western half of the reservation is shown in **Figure 5-3**.

5.1.4 POPULATION LOCATION IN DISTRICT 5

Population density, according to the number of persons within a census block in the U.S. 2010 Census, is shown graphically in **Figure 5-4**. This figure shows the census block boundaries in a dashed red line. Population in the study area is most dense in the area between Casa Blanca Road and Wren Street.



Source: District 5 Master Plan

Figure 5-3: Proposed Reservation Wide Trail System in District 5

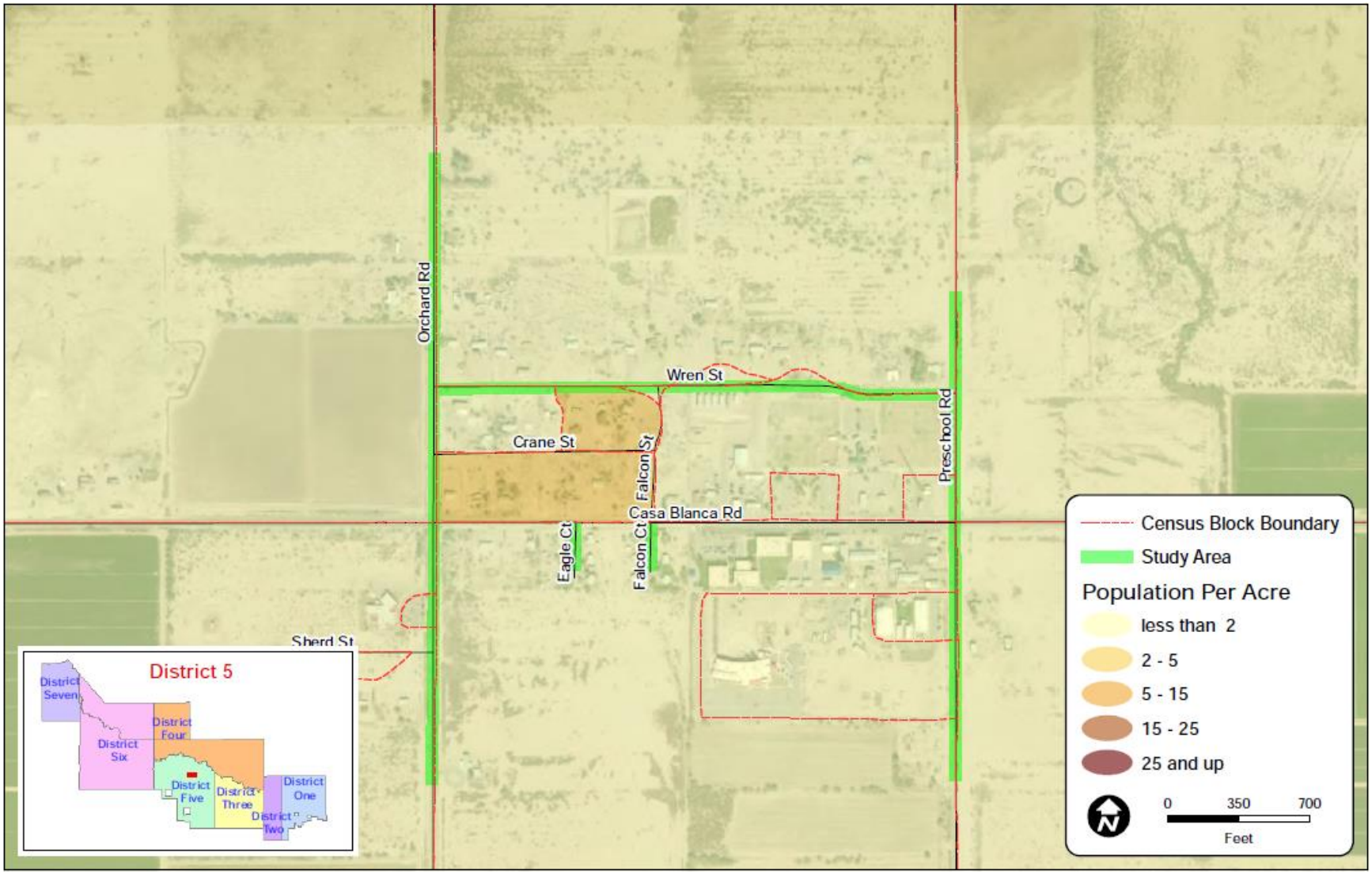


Figure 5-4: District 5 Population Location

5.2 EXISTING TRANSPORTATION CONDITIONS RELATING TO PEDESTRIANS AND BICYCLISTS

5.2.1 EXISTING STREET SYSTEM

Key roads in the study area are described below.

Wren Street (Rte 366) is a two-lane gravel road with solar lighting between Orchard Road and Preschool Road. Traffic volumes on Wren Street are not available; however, the approximately 20 homes on Wren Street are estimated to generate approximately 190 vehicle trips per day, based on estimates derived from the Trip Generation Manual (ITE 8th Edition).

Preschool Road (Rte 109) is a two-lane roadway with no shoulders. Preschool Road is paved south of Casa Blanca Road and is a dirt road north of Casa Blanca Road. Traffic volumes are approximately 520 vehicles per day south of Casa Blanca Road and 150 vehicles per day north of Casa Blanca Road. Stop signs are located on Preschool Road at Casa Blanca Road.

Orchard Road (Rte 107) is a two-lane rural roadway with no shoulders. 2003 traffic count data indicates volumes of approximately 241 vehicles per day north of Casa Blanca Road and 342 vehicles per day south of Casa Blanca Road. It is paved south of Casa Blanca Road and gravel north of Casa Blanca Road. Orchard Road is stop sign controlled at Casa Blanca Road.

Eagle Court (Rte 206) is a short cul-de-sac road that is currently not included in the Tribal Transportation Inventory. It serves six homes. Eagle Court has a stop sign at the intersection with Casa Blanca Road.

Falcon Street (Rte 206) is a short cul-de-sac road that is currently not included in the Tribal Transportation Inventory. It serves six homes. Falcon Street has a stop sign at the intersection with Casa Blanca Road.

5.2.2 PEDESTRIAN, BICYCLE, AND TRAFFIC COUNTS

Pedestrian, bicycle and traffic counts were obtained at two locations during the peak hours of 4 p.m. to 6 p.m. These locations are:

- Intersection of Falcon Court/Casa Blanca Road
- Intersection of Preschool Road/Casa Blanca Road

The counts are summarized in **Table 5-1**. Pedestrian volumes were relatively low at these locations during this time period.

Table 5-1: 2014 Pedestrian, Bicycle, and Vehicle Counts

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND		
Location	**Time period**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**
Falcon Court/ Casa Blanca Road	4 p.m. to 6 p.m.	5	2	0	3	1	2	133	0	0	229	0	0
Preschool Road/ Casa Blanca Road	4 p.m. to 6 p.m.	62	3	0	6	2	2	162	1	0	267	0	0

Source: Count taken May 13, 2014

5.2.3 LEVEL OF SERVICE

All study area roads are operating in the A-C range for existing traffic volumes.

5.2.4 ACCESS MANAGEMENT

The project team reviewed the number of driveway openings and intersections on each of the study area roads to determine whether there may be opportunities to improve pedestrian safety through access management. A brief overview of access points on each road and access management considerations on each road is provided in **Table 5-3**.

Table 5-2: Access Characteristics on Study Area Roads

ROAD NAME	NUMBER OF DRIVEWAY OPENINGS	NUMBER OF INTERSECTING STREETS	ISSUES AND OPPORTUNITIES
Preschool Rd (Rte 109)	East side 2 driveways West side 7 driveways	East side none West side 2 intersections (Casa Blanca Road and Wren St.)	South of Casa Blanca Road, Preschool Road provides access to the Ira Hayes High School, so pedestrian access is important in this area. A sidewalk connection to homes north of Casa Blanca Road will improve safety
Orchard Rd	East side 4 driveways West side 4 driveways	East side 3 intersections (Casa Blanca Road, Wren St and Crane Street). West side 2 intersections (Casa Blanca Road and Sherd St.)	None identified. There are a limited number of driveways in this area.
Wren St (Rte 366)	North side 15 driveways South side 5 driveways	North side none South side 1 intersection (Falcon Ct)	Walkers will primarily be traveling on the north side of the street, since the majority of homes are located there. When Wren Street is paved, a sidewalk will improve safety.
Eagle Ct (Rte 206)	East side 3 driveways West side 3 driveways	None	None identified on this short cul-de-sac street.
Falcon Court (Rte 206)	East side 3 driveways West side 3 driveways	None	A path extended further north to Wren Street will increase safety and reduce walking distances between the two neighborhoods.

5.2.5 ROAD WIDTHS AND RIGHT-OF-WAY WIDTHS

Current road widths and right-of-way widths are summarized in **Table 5-3**. These data are summarized from the Tribal Transportation Inventory, where available.

Table 5-3: Roadway and Right-of-Way Widths

ROAD NAME	ROADWAY WIDTH (FEET)	RIGHT-OF-WAY WIDTH (FEET)
Wren St (Rte 366)	22	0
Orchard Road (Rte 107)	24	80
Preschool Road (Rte 109)	24 feet (south of Casa Blanca Road) 22 feet (north of Casa Blanca Road)	0 0
Eagle Court	36	Unknown
Falcon Court	38	Unknown

Source: Tribal Transportation Inventory

5.2.6 PLANNED ROAD IMPROVEMENT PROJECTS

The Gila River Indian Community Transportation Study (2011) recommended paving Preschool Road between Casa Blanca Road and Nelson Road. Orchard Road is planned to be paved in fiscal year 2017 between Casa Blanca Road and Wetcamp Road per the Tribal Transportation Improvement Program.

5.2.7 FUNCTIONAL CLASSIFICATION

Table 5-4 summarizes BIA roadway functional classifications for study area roads.

Table 5-4: Tribal Transportation Inventory Functional Classification

DISTRICT 5 STUDY AREA ROADS	CLASS	DESCRIPTION
Wren Street	3	Streets located within communities serving residential areas.
Eagle Road Falcon Road	4	Rural major collector road is collector to rural local roads.
Orchard Road Preschool Road	5	Rural local road that is either a section line and/or stub type roads, make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. Also included are roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes.

Source: Tribal Transportation Inventory

5.2.8 PAVEMENT CONDITIONS

Pavement conditions for study area roads are summarized in **Table 5-5**.

Table 5-5: Pavement Conditions

ROAD NAME	ROADBED CONDITION CODE IN THE TRIBAL TRANSPORTATION INVENTORY	DESCRIPTION OF PAVEMENT CONDITIONS, BASED ON REVIEW OF AERIALS
Wren St (Rte 366)	1- Bladed unimproved road , poor drainage, poor alignment	Earth road
Orchard Road (Rte 107)	North of Casa Blanca Road: 2-Bladed unimproved road , poor drainage, poor alignment South of Casa Blanca Road: 5- A roadbed constructed to adequate standards with good horizontal and vertical alignment and proper drainage	North of Casa Blanca Road: Earth road South of Casa Blanca Road: Some edge raveling and transverse and longitudinal cracking noted.
Preschool Road (Rte 109)	North of Casa Blanca Road: 2-Bladed unimproved road , poor drainage, poor alignment South of Casa Blanca Road: 4- A designed and constructed roadbed with some drainage and alignment improvements required.	North of Casa Blanca Road: Earth road South of Casa Blanca Road: Extensive alligator cracking south of Casa Blanca Rd
Eagle Court	Not in inventory	Gravel road
Falcon Court	Not in inventory	Gravel road

Source: Tribal Transportation Inventory and visual inspection

5.2.9 EXISTING SIDEWALKS AND CROSSWALKS

Limited sidewalks and crosswalks are located along streets directly adjacent to the study area roads. There are currently no sidewalks or crosswalks directly along these roadways. Sidewalks are located on Casa Blanca Road including both sides of the street from Indian Route 107 to east of Eagle Court and along one side of the road from west of Wren Street to Gibson Road. Crosswalks are located along Casa Blanca Road. Existing sidewalks and crosswalks in the study area are shown graphically in **Figure 5-5.** There are currently sidewalks on Casa Blanca Road as well as school crosswalks.

5.2.10 EXISTING STREET LIGHTING

Existing street lights are as shown in the pedestrian needs map in **Figure 5-7.** Street lights are located on Wren Street, Eagle Court, and Casa Blanca Road.

5.2.11 CRASH DATA

ADOT crash data has been obtained and analyzed for pedestrian and bicycle crashes within the Community. The crash data spanned a five-year span from January 1, 2009 to February 4, 2014. The crash data shows no pedestrian- or bicycle-related crashes within the District 5 study area.

5.2.12 TRANSIT AND SCHOOL BUS ROUTES AND STOPS

Representatives from area schools were contacted to discuss pedestrian safety needs. Information from Transportation Managers at the Casa Blanca School, Skyline Charter Middle School, St. Peters Missionary School and the Ira Hayes High School indicated that bus pickups typically occur at or near the students' homes. No specific school bus stop locations were identified for this reason.

5.3 DRAINAGE AND ENVIRONMENTAL CONDITIONS

5.3.1 CHARACTERISTICS OF THE PHYSICAL, NATURAL, AND CULTURAL ENVIRONMENTS

Biological Resources

The District 5 study area is within the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community. Based on a review of the U.S. Fish and Wildlife Service Threatened and Endangered Species Natural Resources List and aerial photos, it has been determined that there is no suitable habitat for threatened or endangered species in the study area. However, the study area may provide suitable habitat for two candidate species (Sonoran Desert tortoise and Tucson shovel-nosed snake). If there is a federal nexus (federal funding, Section 404 permitting, etc.) then improvements identified in this study will require a biological evaluation by a qualified biologist during the environmental clearance process.

Section 404/401 of the Clean Water Act

Based on the review of aerial photography, there are no natural washes that could be considered Waters of the United States under the jurisdiction of the U.S. Army Corps of Engineers within the study area; however, it is recommended that this be reevaluated as recommended improvement projects are designed.

Hazardous Materials

The U. S. Environmental Protection Agency Envirofacts website has been reviewed for Environmental Protection Agency regulated facilities in the study area. There are no facilities within the study area and the facilities in the vicinity of the study area are 1) of sufficient distance and/or down-gradient from the project area as to not pose an environmental concern; 2) do not have violations; or 3) have completed remediation/compliance.

Cultural Resources

Ten previous archaeological surveys have been conducted within the study area. The study area has been surveyed with the exception of 0.77 acre along Orchard Road and Preschool Road. Four archaeological sites have been recorded. Additional survey of the 0.77 acre that have not previously been surveyed and consultation with the Gila River Indian Community will need to occur when an individual project is at the 30% design plan stage.

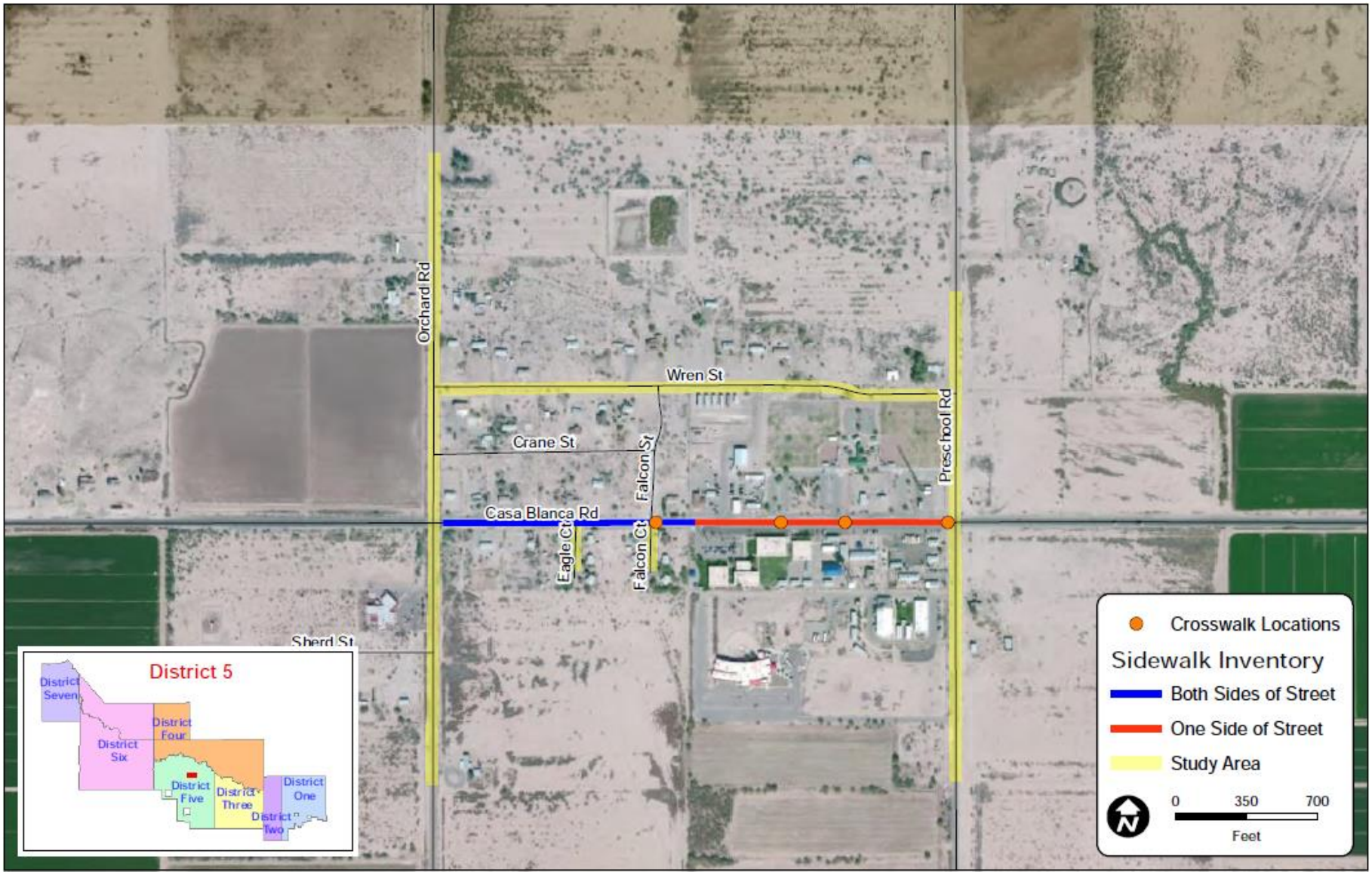


Figure 5-5: District 5 Sidewalks

5.3.2 DRAINAGE ISSUES AND FLOODING

Drainage infrastructure in the District 5 study area is shown in **Figure 5-6**. It should be noted that flooding, ponding, and sheet flows are natural occurrences during every rain storm, and is a major problem for the walking community and especially those that do not have alternative transportation. An overview of drainage conditions is provided as follows:

Wren Street (Rte 366) is an at-grade, two-lane gravel road. The existing roadway does not have curb and gutter or sidewalks on either side of the road. There are no known cross drainage culvert crossings or local drainage facilities on Wren Street. Local drainage generally sheet flows across Wren Street from south to north.

Preschool Road (Rte 109) is a two-lane paved roadway with no shoulders south of Casa Blanca Road and a dirt road north of Casa Blanca Road. The existing paved roadway south of Casa Blanca Road does not have curb and gutter or sidewalks on either side of the road. Minor graded ditches or swales are located on either side of the roadway. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. There are no known cross drainage culvert crossings of Preschool Road.

Orchard Road (Rte 107) is a two-lane paved roadway with no shoulders south of Casa Blanca Road and a dirt road north of Casa Blanca Road. The existing paved roadway south of Casa Blanca Road does not have curb and gutter or sidewalks on either side of the road. Minor graded ditches or swales are located on both sides of the roadway. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. An irrigation canal runs along the west side of Orchard Road south of Casa Blanca Road. Sediment has been observed on the pavement either from local drainage or windblown sources. There are no known cross drainage culvert crossings of Orchard Road.

Eagle Court (Rte 206) is a short cul-de-sac and is an at-grade gravel road. It serves six homes. The curb returns at Casa Blanca Road allow pavement drainage to be directed to Eagle Court. The Eagle Court road is lower than Casa Blanca Road. There are no sidewalks along Eagle Court.

South Falcon Street (Rte 206) is a short cul-de-sac and is an at-grade gravel road. It serves six homes. The curb returns at Casa Blanca Road allow pavement drainage to be directed to South Falcon Street. The South Falcon Street roadway is lower than Casa Blanca Road. There are no sidewalks along South Falcon Street.

North Falcon Street (Rte 206) is a dirt road that connects Casa Blanca Road to Wren Street. There are no sidewalks along North Falcon Street. There are no known cross drainage culvert crossings of North Falcon Street. Local drainage generally sheet flows across Falcon Street from south to north. No drainage facilities for local drainage exist along North Falcon Street.

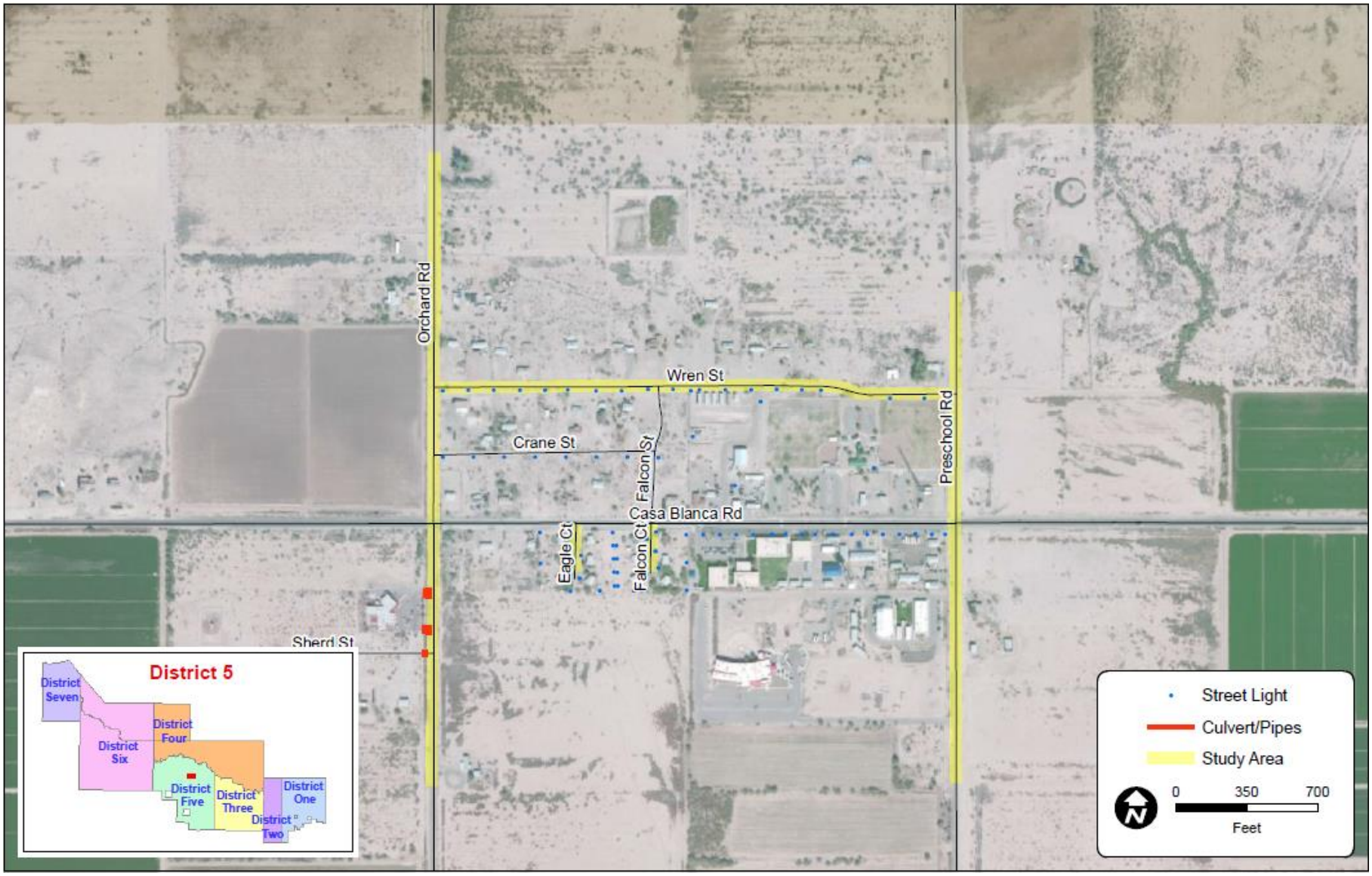


Figure 5-6: District 5 Drainage Infrastructure

5.4 SUMMARY OF PEDESTRIAN SAFETY NEEDS IN DISTRICT 5

Pedestrian safety needs were identified through a process which included extensive public outreach, input from stakeholders, analysis of crash data and road conditions, and analysis of how pedestrian facilities will link residents to activity centers, such as schools, parks, Multipurpose Centers and Service Centers. Key pedestrian safety needs include the following:

Wren Street

- Provide a multi-use path or trail on Wren Street between Orchard Road and Preschool Road.

Preschool Road

- Provide a multi-use path between the neighborhoods north of Wren Street to the Ira Hayes High School driveway.

Falcon Court north of Casa Blanca Road

- Provide a multi-use path between Casa Blanca Road and Wren Street.

Falcon Court south of Casa Blanca Road

- Provide a sidewalk to serve the homes on this cul-de-sac.

Eagle Court

- Provide a sidewalk to serve the homes on this cul-de-sac.

Orchard Road

- Provide a multi-use path within study area boundaries.

Note vegetation to the right in the photo that makes it difficult for pedestrians to walk on Preschool Road

Casa Blanca Road (although not a study area road, comments were received on this road and included)

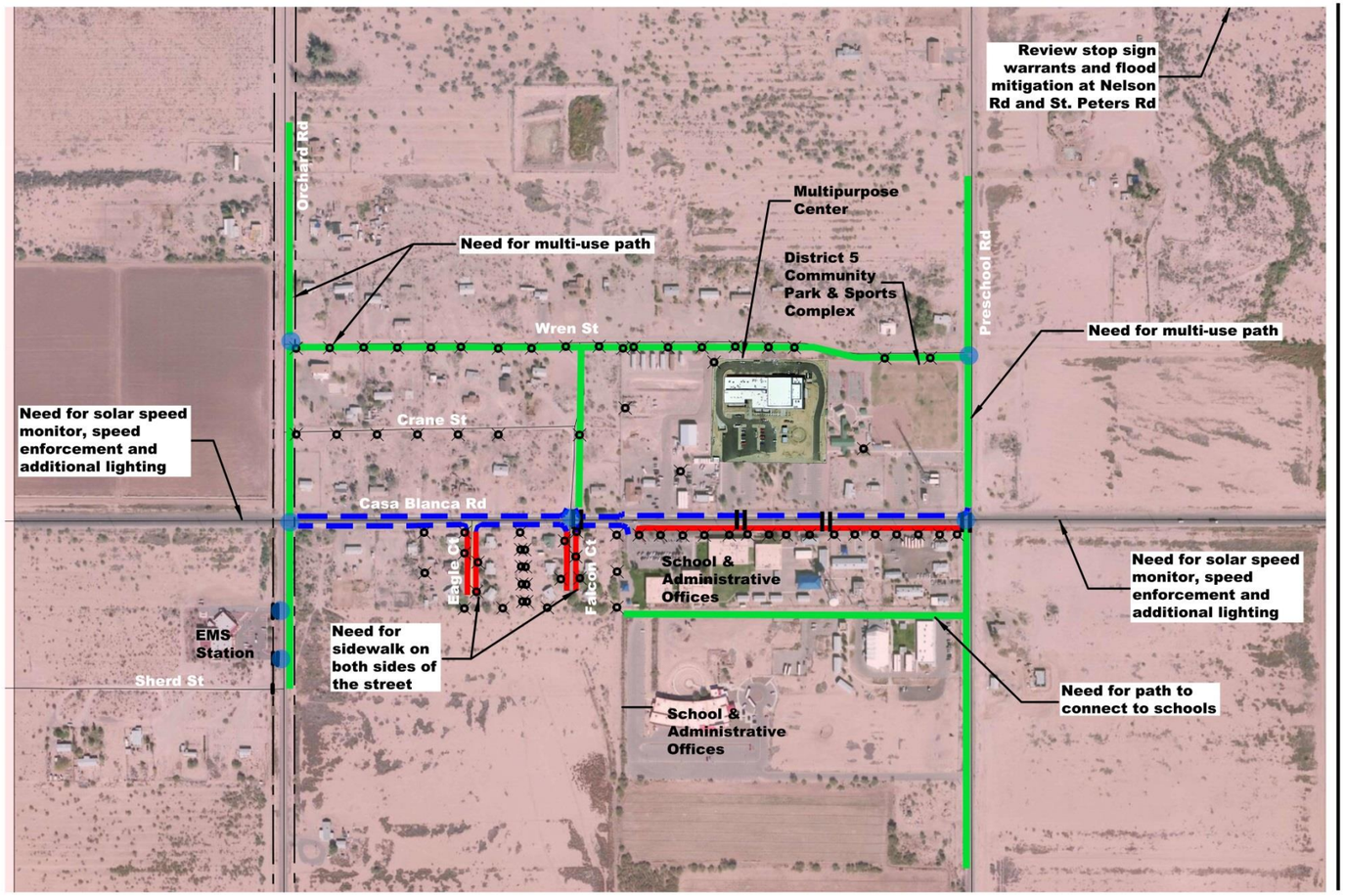
- Provide more speed control on Casa Blanca Road. A number of stakeholders mentioned that Casa Blanca Road is used as a detour route when a crash occurs on Maricopa Road.
- Provide additional street lighting east of Preschool Road and west of Orchard Road.
- Add sidewalks on the south side of Casa Blanca Road. There are some sidewalks, but there is a parking area in front of the schools with limited room for walkers.

Drainage needs

- Provide curb and gutter at new sidewalk locations to keep pavement drainage off of sidewalks.
- Provide new or improved culvert locations at cross drainages and at existing locations to improve the drainage crossings so that pedestrians can walk more easily.

Other

- Provide a path connection between the schools located south, and parallel to, Casa Blanca Road.
- Stop sign violations and speeding create potential safety issues at Nelson Road and St. Peters Road.
- Address flooding issues on Nelson Road that create hazards for pedestrians.



Note: Symbols are schematic only (not to scale)

District 5 Study Area

Figure 5-7: District 5 Pedestrian Needs

5.5 RECOMMENDED IMPROVEMENTS TO MEET IDENTIFIED NEEDS

A program of improvements has been developed to address pedestrian safety needs. An overview of the projects is presented in **Figure 5-8**. Following this table are project information sheets describing the improvement projects on each roadway. These improvement projects are summarized in **Table 5-6**. It should be noted that a summary of recommended drainage improvements is provided in **Appendix B**. This Appendix also provides maps of the drainage improvements.

5.5.1 STUDENT PEDESTRIAN SAFETY

One emphasis of the study has been the identification of pedestrian safety improvements to enhance safety for school children. This included investigating potential school bus stop locations, based on discussions with school transportation providers and the Tribal Youth Council. No school bus stop locations were identified in the study area. However, the sidewalk, shoulder, and speed control improvements that are recommended will make it safer for school children, as well as the general public, to walk in the Community.

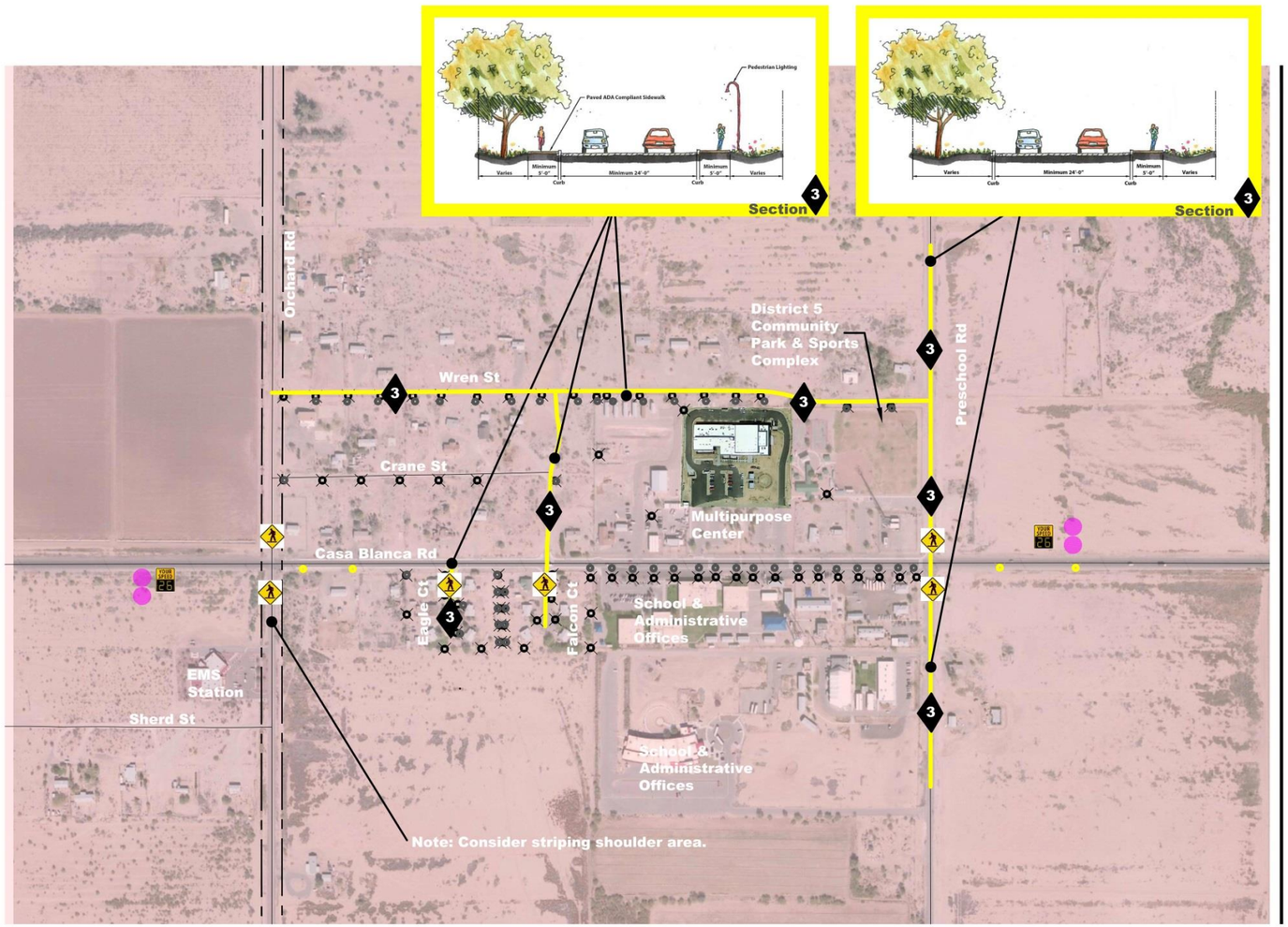
5.5.2 ACCESS MANAGEMENT TECHNIQUES FOR PEDESTRIAN SAFETY

As further development occurs in the Community, access management techniques can be used to help improve pedestrian safety. Examples of access management techniques are:

- Reducing the number of driveways, within a given distance (per block or mile) through provisions of frontage roads and closing multiple driveways that serve one location.
- Providing greater separation between driveways.
- Providing a safe refuge for pedestrian crossings with raised medians.
- Providing right-turn lanes for high-volume driveways.
- Constructing a landscaped or other clearly marked buffer helps to visually define sidewalk and driveway locations.
- Providing a clear zone free of visual obstructions such as signs, large trees and bushes, or parked vehicles, which will allow pedestrians to be seen by drivers and to see oncoming vehicles.

Access management opportunities in the District 5 study area and how they have been addressed in the plan are:

- Falcon Court (Rte 206) – An improvement to provide a path to Wren Street will reduce walking distances between the two neighborhoods.
- Preschool Rd (Rte 109) – Pedestrian access to the Ira Hayes High School has been identified as an opportunity, and a sidewalk is recommended in this area.



District 5 Study Area

LEGEND

Existing Infrastructure

- Street Lighting
- Existing Right of Way
- GRIC Allotments

Recommended Pedestrian Safety Improvements

- Install Street Light
- Install Standard Crosswalk Striping at Stop Sign
- Install Speed Monitors
- Install Gateway Signage

N

Note: Symbols are schematic only (not to scale)

Figure 5-8: District 5 Recommended Pedestrian Safety Improvements

Table 5-6: District 5 Recommended Pedestrian Safety Improvement Projects

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Preschool Road (Route 109)				
Construct sidewalk with curbs on one side of the road	Ira Hayes High School Access Road to unnamed residential street 0.13 mi north of Wren Street	0.43	Asphalt – 190,000 Concrete – 270,000	Costs include sidewalk paving option (asphalt or concrete), curb and gutter, and signing. Right-of-way will need to be acquired for this project. Sidewalk is assumed on the west side of the street.
Stripe crosswalks at stop signs at Casa Blanca Road (2 locations)	At Preschool Road/Casa Blanca Road intersection	N/A	1,000	
Wren Street (Route 366)				
Construct sidewalk with curb on both sides of the road	Orchard Road to Preschool Road	0.49	Asphalt – 425,000 Concrete – 570,000	Right-of-way will need to be acquired for this project, and would be dependent on when the road is paved. Currently there are no plans to pave this road.
Orchard Road (Route 107)				
Stripe shoulders on one sides of street	Sherd Street to residential road 0.07 miles north of Wren Street	0.31	N/A	Orchard Road, from Casa Blanca Rd to Wetcamp Road is programmed to be paved in the Tribal Transportation Improvement Program. A consideration may be to narrow the lanes and stripe a shoulder area on one side of the road.

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Eagle Court (Route 206)				
Construct sidewalk on both sides of street	South end of cul-de-sac to Casa Blanca Road	0.04 miles	Asphalt – 40,000 Concrete – 60,000	Right-of-way will need to be acquired. Cost includes paving option, curb, and miscellaneous signing.
Stripe crosswalks at stop signs at Casa Blanca Road (1 locations)	intersection		1000	
Falcon Court (Route 206)				
Construct curbed sidewalk on both sides of street	South end of cul-de-sac to Casa Blanca Road	0.05 miles	Asphalt – 40,000 Concrete – 60,000	Right-of-way would need to be acquired. Cost includes sidewalk paving option, curb, and miscellaneous signing.
Stripe crosswalks at stop signs at Casa Blanca Road (2 locations)	intersection		1000	
Construct curbed sidewalk on both sides of Falcon Road	Casa Blanca Road to Wren Street	0.13 miles	Asphalt – 95,000 Concrete – 160,000	Cost includes grading, sidewalk paving option, and one culvert extension.
Other Projects				
Construct additional street lighting on Casa Blanca Road	Specific area to be determined	N/A	50,000	Specific areas to be determined-but prior to Preschool Road and Orchard Road on Casa Blanca Road.
Construct solar speed monitor (2 locations on Casa Blanca Road)	Casa Blanca Road, location to be determined	N/A	15,000	Education aimed at known speeders in this small Community can also be an effective deterrent.

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Construct gateway signing (2 locations on Casa Blanca Road)	Casa Blanca Road, location to be determined	N/A	3,000	

*Note: costs are based on 2014 estimated costs and include a 30% contingency to account for mobilization (8%), miscellaneous work (12%), construction surveying and layout (2%), erosion control (1%), contractor quality control (2%), furnish water supply (1%), and maintenance and protection of traffic (4%). See **Appendix B** for further information regarding recommended drainage improvements.

Project Information Sheet – Preschool Road (Rte 109)

Project Name	Preschool Road Pedestrian Safety Improvements		
Project Location	Preschool Road, 0.25 south of Casa Blanca Road to 0.25 miles north of Casa Blanca Road (0.50 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved (south of Casa Blanca Road) ☒	Gravel (north of Casa Blanca Road ☒	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Paths: Construct sidewalk on one side of road with curb. Sidewalk is assumed on the west side of the street.		
	Crosswalks: Restripe existing crosswalk at High School (to replace existing crosswalk).		
Project Justification	Preschool Road is a rural local road which carries relatively low traffic volumes. Pedestrian improvements will help walkers to reach the schools and the District 5 Multipurpose Center.		
Cost Estimate	See Table 5-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	The project could be broken into two phases: Improvements on Preschool Road north of Casa Blanca Road could be constructed when Preschool Road is paved. Improvements on Preschool Road south of Casa Blanca Road could be phased earlier. Right-of-way will need to be acquired on this road.		

Preschool Road South of Casa Blanca Road

Preschool Road North of Casa Blanca Road

Project Information Sheet – Orchard Road (Rte 107)

Project Name	Orchard Road Pedestrian Safety Improvements		
Project Location	Orchard Road, Sherd Street to Wetcamp Road		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
	Paved (south of Casa Blanca Road) ☒	Gravel (north of Casa Blanca Road ☐	Dirt ☒
Project Description	**Project Components**		
	Shoulder Improvements: Stripe shoulders on one side of road.		
Project Justification	Orchard Road is a rural local road. Construction of shoulders will provide an area for residents to bicycle and walk on.		
Cost Estimate	See Table 5-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	Orchard Road, from Casa Blanca Rd to Wetcamp Road is programmed to be paved as a 24-foot road in the Tribal Transportation Improvement Program. A consideration may be to narrow the lanes and strip a shoulder area on one side of the road.		

Orchard Road, looking north towards Casa Blanca Road

Orchard Road, view from Casa Blanca Road towards Wren Street

Project Information Sheet – Wren Street (Rte 366)

Project Name	Wren Street Pedestrian Safety Improvements		
Project Location	Wren Street, Orchard Road to Preschool Road (0.49 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☐	Gravel ☒	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Paths: Construct a sidewalk with curbs on both sides of road.		
Project Justification	Wren Street is a residential gravel road which serves approximately 20 homes. There is an existing solar lighting system on this street.		
Cost Estimate	See Table 5-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	It is recommended that the sidewalks be installed when Wren Street is paved.		

Wren Street, looking west from Preschool Road

Project Information Sheet - Eagle Court (Rte 206)

Project Name	Eagle Court Pedestrian Safety Improvements		
Project Location	Eagle Court, south end of road to Casa Blanca Road (0.04 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☐	Gravel ☒	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Paths: Construct a sidewalk with curbs on both sides of the street.		
	Drainage Improvements: The curb returns at Casa Blanca Road allow the pavement to drain. Curbs will also assist with drainage.		
	Crosswalks: East-west crosswalk at Casa Blanca Road at stop sign.		
Project Justification	Eagle Court is a cul-de-sac residential street south of Casa Blanca Road. Provision of sidewalks will help residents to more easily travel to school and to activity centers such as the District 5 Multipurpose Center.		
Cost Estimate	See Table 5-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	This project should be implemented in conjunction with paving the road. Right-of-way may need to be acquired for this project.		

Eagle Court, looking south from Casa Blanca Road

Project Information Sheet- Falcon Court (Rte 206)

Project Name	Falcon Court Pedestrian Safety Improvements		
Project Location	Falcon Court, south end of road to Casa Blanca Road (0.05 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☐	Gravel ☒	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Paths: Provide a sidewalk with curbs on both sides of the street.		
	Drainage Improvements: Curbs will also assist with drainage control.		
	Crosswalks: Stripe east-west crosswalks at Casa Blanca Road at stop sign.		
Project Justification	Falcon Court is a cul-de-sac residential street south of Casa Blanca Road. Provision of sidewalks will help residents to more easily travel to school and to activity centers such as the District 5 Multipurpose Center. Extending a path to the north to Wren Street will formalize a path currently being used.		
Cost Estimate	See Table 5-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	This project could be implemented in conjunction with paving the road. Construction of a sidewalk north of Casa Blanca Road to Wren Street is a project that could be constructed separately, when the road is paved. Right-of-way may need to be acquired for this project.		

Falcon Court, looking south from Casa Blanca Road

5.6 IMPROVEMENT PROJECT PRIORITIZATION

The transportation improvement projects will address critical pedestrian and bicycle needs.
A matrix has been developed to assign the priorities for various improvement project elements into short, mid- or long range time frames. The prioritization is summarized in **Table 5-7**. However, as funding becomes available, or priorities change, these projects can be re-prioritized.

Table 5-7: District 5 Pedestrian Safety Improvements Prioritization

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMEND-ATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMEN-TAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Preschool Road, High School Access Road to unnamed residential street 0.13 miles north of Wren Street																		
Construct sidewalk on one side of the road, with curbs	3	2	0	2	3	1	2	2	2	2	2	2	2	0	1	26	Mid	
Stripe crosswalk at stop sign at Casa Blanca Road	3	2	0	2	3	5	2	2	1	2	2	1	1	5	1	32	Short	
Wren Street, Orchard Road to Preschool Road																		
Construct sidewalk on both of the road, with curbs	3	2	0	1	1	1	2	2	2	2	2	2	2	0	1	23	Long	This road is currently unpaved.
Orchard Road, Sherd Street to Wetcamp Road																		
Stripe shoulders	3	2	0	2	2	2	2	2	2	2	2	2	2	0	2	27	Short	This project is currently pro-grammed in the Tribal TIP (Casa Blanca Rd to Wetcamp Rd.)

STREET NAME / PROJECT	PRIORITIZATION CRITERIA: SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMEND-ATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMEN-TAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Eagle Court, south end of cul-de-sac to Casa Blanca Road (0.04 miles)																	
Install crosswalk at Casa Blanca Road	3	0	0	1	1	5	2	2	1	2	2	2	2	5	1	29	Mid	
Construct sidewalk with curb on both sides of the road	3	0	0	1	1	3	2	2	2	2	2	2	2	0	1	23	Long	This road is currently unpaved.
Falcon Court, south end of cul-de-sac to Casa Blanca Road																	
Construct sidewalk with curb on both sides of the road	3	0	0	1	1	3	2	2	2	2	2	2	2	0	1	23	Long	This road is currently unpaved.
Stripe crosswalks at stop sign at Casa Blanca Road	3	0	0	1	1	5	2	2	1	2	2	2	1	5	1	28	Mid	
Construct sidewalk on one side, between Casa Blanca Road and Wren Street	3	0	0	1	1	3	2	2	2	2	2	2	2	0	1	23	Long	This road is currently unpaved.

STREET NAME / PROJECT	PRIORITIZATION CRITERIA: SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMEND-ATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMEN-TAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Other Projects																	
Construct additional solar street lighting on Casa Blanca Road	4	2	0	1	4	3	2	2	1	2	2	2	2	0	1	28	Mid	
Construct solar speed monitor (2 locations on Casa Blanca Road)	4	2	0	1	4	3	2	2	1	2	2	1	2	5	1	32	Short	
Construct gateway signing (2 locations on Casa Blanca Road)	4	2	0	1	4	5	1	2	1	2	2	1	1	5	1	32	Short	Needs to be located to avoid sign clutter.

6 District 6

6.1 DISTRICT 6 STUDY AREA AND OVERVIEW

District 6 sits in the shadows of the Estrella Mountains. The northern boundary of the Community is adjacent to the Ahwatukee Foothills and the southern boundary borders the City of Maricopa. The majestic Sierra Estrella Mountains that seem to stand guard over all of this area are known by the Pima and Maricopa Tribes as Komatke, which is loosely translated into English as Broad Mountain or Flat Mountain.

District 6 has four village areas: Lone Butte, Santa Cruz, Komatke, and Co-op Village. It is 176 square miles and is home to the Komatke Community Center Complex, the scenic Estrella Mountain range, and Vee Quiva Casino, one of the Community's three casinos.

The roads that are the focus of this study in District 6 are:

- 51st Avenue (Rte 2638) – Maricopa County route
- Pecos Road (Rte 32) – BIA route
- St Johns Road (Rte 3870) – Maricopa County route

These roads are shown in **Figure 6-1.**

6.1.1 DISTRICT SIX MASTER PLAN

Key objectives of the District 6 Master Plan relating to the goal of providing a safe environment for pedestrians and bicyclists include the following:

- Support the development of a Reservation-wide trail system.
- Establish a network of sidewalks and/or pathways that connect public facilities, specifically along West Pecos Road, St. John's Road, and 51st Avenue.
- Establish a network of sidewalks and/or pathways that connect the Komatke public service core, residential neighborhoods, and transit stops.
- Develop a multi-use trail program to connect recreational facilities with major District activity centers.
- Promote pedestrian safety by providing low-level lighting along sidewalks, specifically within the Komatke public service core.
- Utilize striping to designate bike lanes on existing roadways as appropriate.
- Provide covered school bus stops to keep children safe.

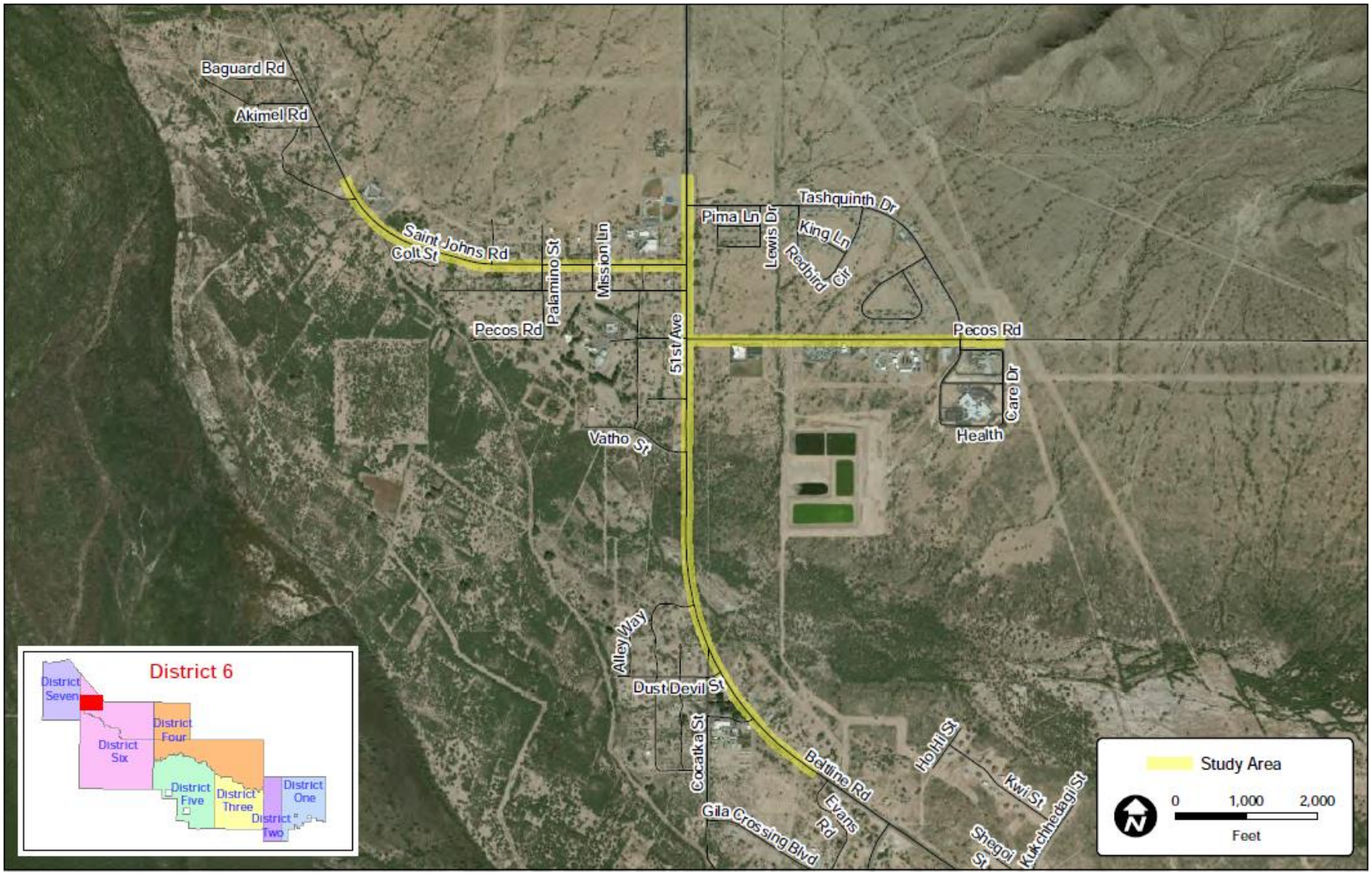


Figure 6-1: District 6 Study Area Roads

6.1.2 EXISTING LAND USE AND ACTIVITY CENTERS

Key land uses in District 6 include a number of Community services and residential areas. On Pecos Road, land uses include the Komatke Boys and Girls Club, Komatke Service Complex, Gila River Indian Community Fire Department, and Gila Crossing Health Care Center. Land uses on or near 51st Avenue include the Gila Crossing Community School and some residential land uses. A service station and mini-mart are located at the intersection of 51st Avenue and Pecos Road. On St Johns Road key land uses include the District 6 Service Center and a Head Start.

Activity centers are shown in **Figure 6-2.**

6.1.3 FUTURE PLANNED LAND USE AND ACTIVITY CENTERS

The District 6 Master Plan calls for preserving the Pecos Road corridor adjacent to 51st Avenue as a regional public service hub. The District 6 Master Plan also calls for the development of a Reservation-wide trail system. The recommended trail system in the western half of the reservation is shown in **Figure 6-3.** The District 6 Master Plan shows trails on 51st Avenue, Pecos Road, Tashquinth Drive, and St Johns Road in the study area.

6.1.4 POPULATION LOCATION IN DISTRICT 6

Population density, according to the number of persons within a census block in the U.S. 2010 Census, is shown graphically in **Figure 6-4**. This figure shows the census block boundaries in a dashed red line. Population in the study area is most dense in the subdivision areas on the south side of Tashquinth Drive.

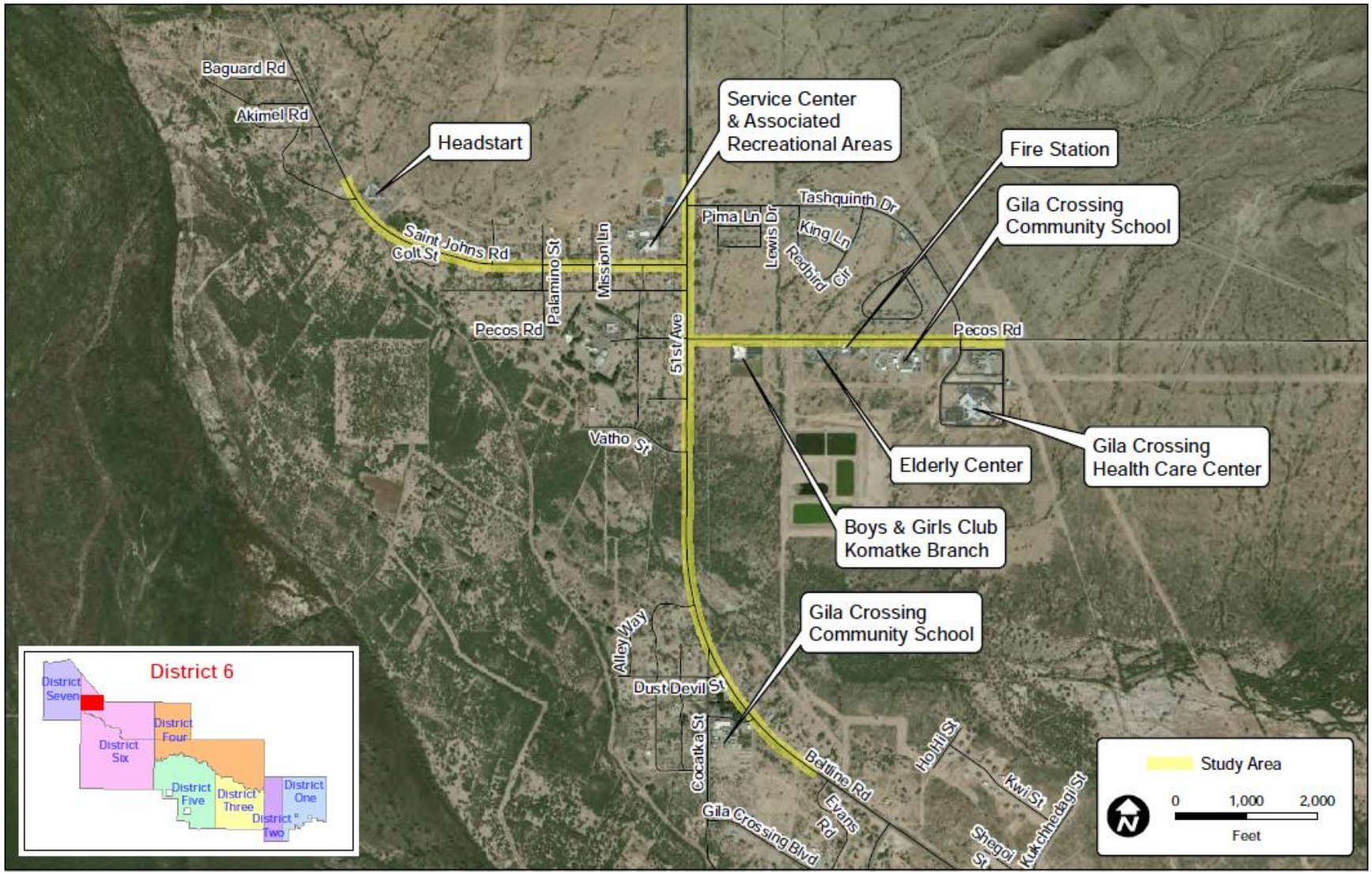
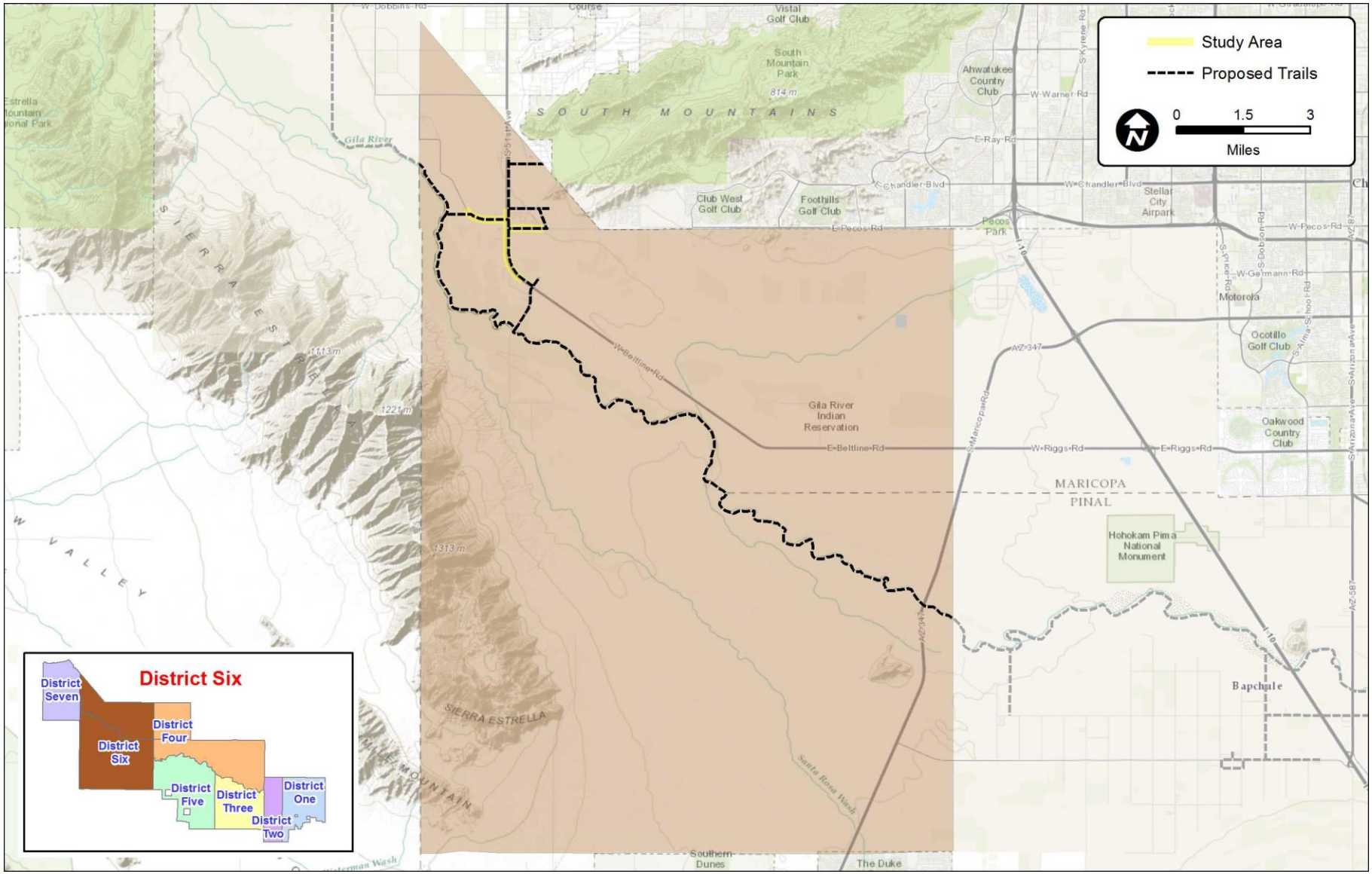


Figure 6-2: District 6 Activity Centers



Source: District 6 Master Plan

Figure 6-3: Recommended Reservation-Wide Trail System in District 6

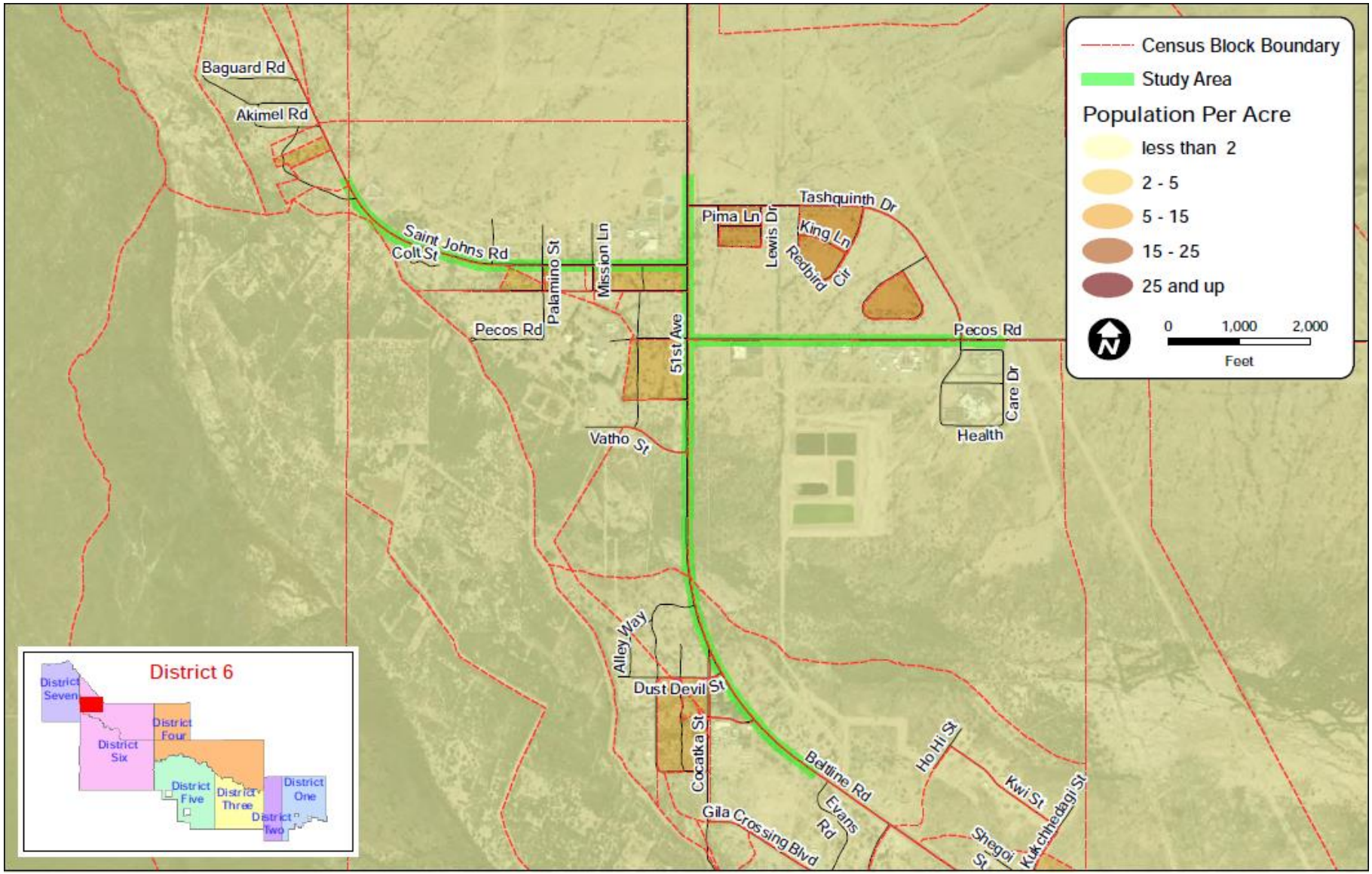


Figure 6-4: District 6 Population Location

6.2 EXISTING TRANSPORTATION CONDITIONS RELATING TO PEDESTRIANS AND BICYCLISTS

6.2.1 EXISTING STREET SYSTEM

Key roads in the study area are described below.

51st Avenue (Rte 2638) is a two-lane paved road with five-foot wide shoulders. 51st Avenue is maintained by Maricopa County and traffic volume counts on 51st Avenue are summarized as follows:

- 51st Avenue south of Pecos Road – 7,666 vehicles per day (2013 count)
- 51st Avenue, south of Saint Johns Road – 8,892 vehicles per day (2013 count)

Pecos Road (Rte 32) is a two-lane paved road with no shoulders. The most recent traffic count showed a traffic volume of 1,713 vehicles per day (2014 count). A traffic signal is located at the intersection of 51st Avenue and Pecos Road.

St. Johns Road (Rte 3870) is a two-lane road with no shoulders; however, the edgelines are striped. It is stop sign controlled at 51st Avenue. This road is maintained by Maricopa County.

6.2.2 PEDESTRIAN, BICYCLE, AND TRAFFIC COUNTS

Pedestrian, bicycle and traffic counts were conducted at four locations for two hour periods at the following locations:

- Intersection of 52st Avenue/St Johns Road
- Intersection of 51st Avenue/Pecos Road
- Boys and Girls Club/Pecos Road
- Intersection of 51st Avenue/Gila Crossing Community School

The highest numbers of pedestrians were recorded at the Boys and Girls Club, where approximately 28 pedestrians crossed the street during a two hour period. The counts are shown in **Table 6-1**.

6.2.3 LEVEL OF SERVICE

The level of service on all study area roads is in the A to C range.

Table 6-1: 2014 Pedestrian, Bicycle, and Traffic Counts

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND		
Location	**Time period**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**
51st Avenue/ St Johns Rd	4-6 p.m.	698	0	0	675	3	0	111	0	0	0	0	0
51st Avenue/ Pecos Road	4-6 p.m.	586	1	0	652	7	2	16	1	0	215	4	0
Boys and Girls Club/ Pecos Road	3-5 p.m.	17	20	0	0	0	0	129	22	0	183	6	0
51st Avenue/ Gila Crossing Community School	3-5 p.m.	0	0	1	1	0	0	698	0	0	583	1	0

Source: Traffic count taken 5/14/2014

6.2.4 ACCESS MANAGEMENT

The project team reviewed the number of driveway openings and intersections on each of the study area roads to determine whether there may be opportunities to improve pedestrian safety through access management. A brief overview of access points on each road and access management considerations on each road is provided in **Table 6-2**.

Table 6-2: Access Characteristics on Study Area Roads

ROAD NAME	NUMBER OF DRIVEWAY OPENINGS	NUMBER OF INTERSECTING STREETS	ISSUES AND OPPORTUNITIES
51st Avenue (Gila Crossing Drive to Tashquinth Drive)	East side 7 driveways West side 12 driveways	East side 2-Pecos Road and Tashquinth Drive West side 7-St Johns Road, Palomino Street, Pecos Road, Crusader Lane, South 51st Avenue, Dust Devil Street, Gila Crossing Road	A school crossing has been constructed by Maricopa County during the course of the study for the Gila Crossing Community School at 51ST Avenue and Gila Crossing Road. This crossing will help enhance pedestrian safety for students crossing 51st Avenue.
Pecos Road	North side 2 driveways South side 18 driveways openings on the south side	North side 1-Tashquinth Drive South side None	There are many students crossing Pecos Road to go to the Boys and Girls Club on the south side of the street. A crosswalk at this location (if warranted) will improve safety.
St. Johns Road	North side 11 driveways South side 24 driveways	North side 3-Mission Lane, Palamino Street and unnamed Road) South side 3- (Mission Lane, Palamino Street and Squawberry Circle)	Residential driveways are located primarily on the south side of the street. A sidewalk or path on this side will provide a safer walking area.

6.2.5 ROAD WIDTHS AND RIGHT-OF-WAY WIDTHS

Current roadway and right-of-way widths are summarized in **Table 6-3**.

Table 6-3: Roadway and Right-of-Way Widths

ROAD NAME	ROADWAY WIDTH (FEET)	RIGHT-OF-WAY WIDTH (FEET)
Pecos Road	28	100
St Johns Road	26	60
51st Avenue	Varies 36 feet to 48*	60

*Google Earth measurement
Source: Tribal Transportation Inventory FY 2014 except where noted

6.2.6 PLANNED ROAD IMPROVEMENT PROJECTS

The Tribal Transportation Improvement Program includes a project to construct a sidewalk, box culvert, curb, gutter, and sidewalk on Pecos Road in fiscal year 2016.

6.2.7 FUNCTIONAL CLASSIFICATION

Table 6-4 summarizes the BIA roadway functional classifications for each study area road.

With respect to FHWA functional classifications, currently St. Johns Road is federally functionally classified as a rural minor collector road. 51st Avenue is functionally classified as rural major collector road. Pecos Road within the study area is not federally functionally classified.

Table 6-4: Tribal Transportation Inventory Functional Classification

DISTRICT 6 STUDY AREA ROADS	CLASS	DESCRIPTION
51st Avenue	2	Rural minor arterial roads providing an integrated network having the characteristics for serving traffic between large population centers, generally without stub connections. May also link smaller towns and communities to major resort areas that attract travel over long distances and generally provide for relatively high overall travel speeds with minimum interference to through traffic movement. Generally provide for at least inter-county or interstate service and are spaced at intervals consistent with population density. This class of road will have less than 10,000 vehicles per day.
St. John's Road Pecos Road	5	Rural local road that is either a section line and/or stub type roads, make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. Also included are roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes.

Source: Tribal Transportation Inventory

6.2.8 PAVEMENT CONDITIONS

Pavement conditions are summarized in **Table 6-5**.

Table 6-5: Pavement Conditions

ROAD NAME	ROADBED CONDITION CODE IN THE TRIBAL TRANSPORTATION INVENTORY	DESCRIPTION OF PAVEMENT CONDITIONS, BASED ON REVIEW OF AERIALS
51st Avenue (Rte 2638)-Maricopa County Road	4-A designed and constructed roadbed with some drainage and alignment improvements required.	Some transverse cracking and edge raveling observed.
Pecos Road (Rte 32)	4-A designed and constructed roadbed with some drainage and alignment improvements required.	
St Johns Road (Rte 3870)	4-A designed and constructed roadbed with some drainage and alignment improvements required.	Patching on areas with longitudinal and transverse cracking

Source: Visual inspection of aerial maps

6.2.9 EXISTING SIDEWALKS AND CROSSWALKS

There are no existing sidewalks on study area roads, except at the intersections of 51st Avenue and Tashquinth Drive and 51st Avenue and Pecos Road. Crosswalks are located at major intersections as shown in **Figure 6-5**.

Crosswalk at 51st Avenue/Tashquinth Drive

6.2.10 EXISTING STREET LIGHTING

Existing street lighting is shown in the pedestrian safety needs map in **Figure 6-9**. On 51st Avenue, street lights are located primarily at key intersections in the neighborhood areas south of Tashquinth Drive. On St. Johns Road street lights are located at the intersection of 51st Avenue. In the area around the Head Start on Pecos Road, street lights are located at the intersection of 51st Avenue and Tashquinth Drive/Health Care Drive.

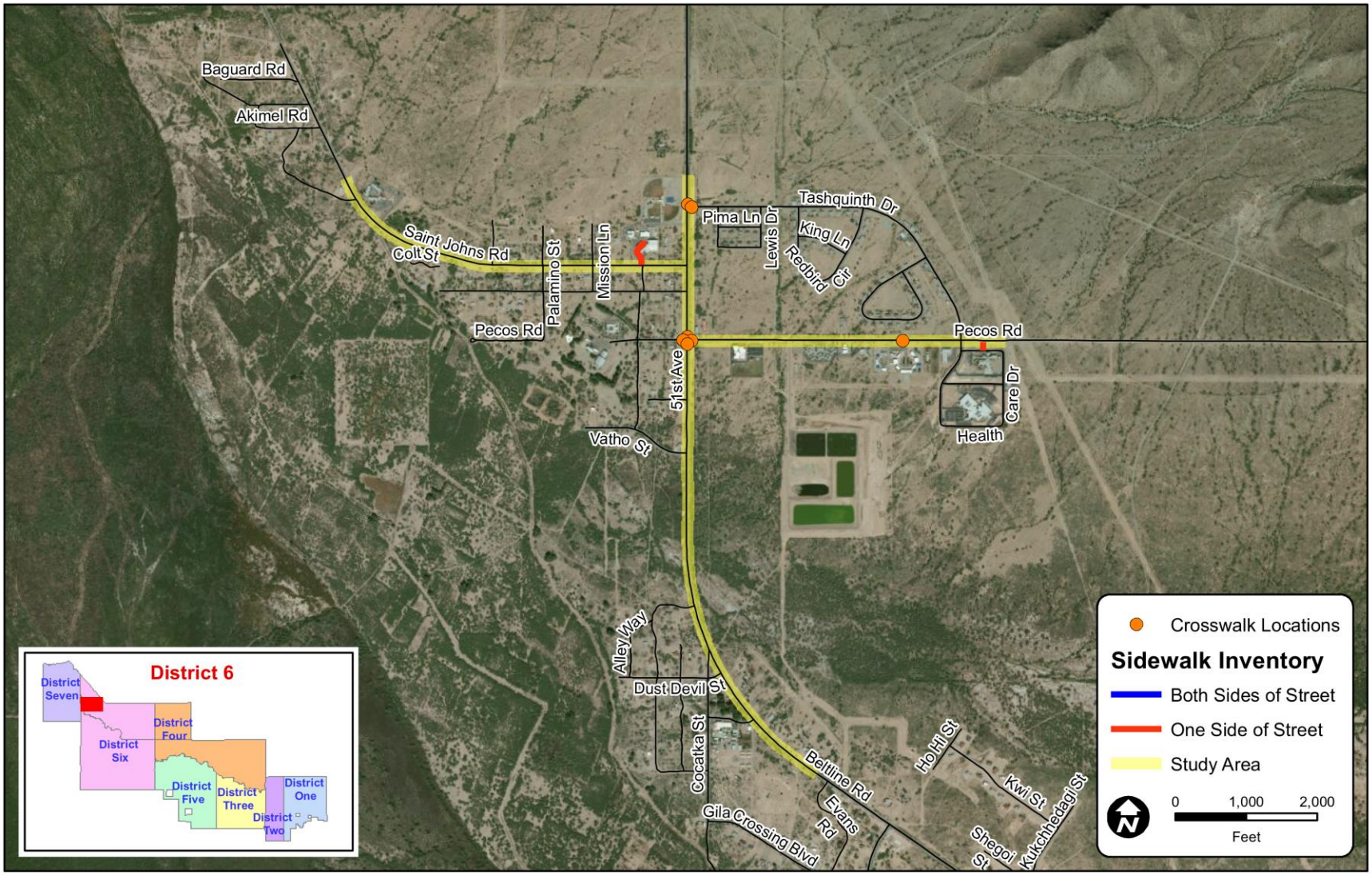


Figure 6-5: District 6 Sidewalks

6.2.11 CRASH DATA

ADOT crash data has been obtained and analyzed for pedestrian and bicycle crashes within the Community. The crash data spanned a five-year period from January 1, 2009 to February 4, 2014. The crash data indicated that two pedestrian and bicycle-related crashes occurred in the District 6 study area, which are described below:

- 51st Avenue at Dust Devil Road: A sideswipe intersection related bicycle-vehicle crash occurred. No contributing circumstances have been listed in the crash report. The incident resulted in possible injury and occurred in clear/dry conditions in the daylight. The bicyclist used a helmet.
- 51st Avenue at Tashquinth Drive: An intersection related pedestrian-vehicle crash occurred. The incident resulted in a non-incapacitating injury and occurred in clear/dry conditions at dusk. No contributing circumstances have been noted in the crash data.

6.2.12 TRANSIT AND SCHOOL BUS ROUTES AND STOPS

Transit service is currently provided by Valley Metro on Route 251. This transit route is shown in **Figure 6-6**. Key transit stops in the study area are at the Gila Crossing Health Care Center and at the intersection of 51st Avenue and Pecos Road.

The Valley Metro Annual Ridership Report for fiscal year 2013 indicted that 3,578 passengers traveled on Route 251. Ridership increased 150.9 % over fiscal year 2012. Information on the specific boardings within the study area is not available.

In addition, the Gila River Indian Community Transit Feasibility and Implementation Plan determined the feasibility of transit services for the Gila River Indian Community and provided guidance for implementing transit service. This study developed transit demand estimates and found a need for transit service within the Community. The planned circulator transit route that serves District 6 and 7 will have bus stops as shown in **Figure 6-7.**

The Gila Crossing Community School Transportation Director said that students are primarily picked up from their homes. A common stop is at the St Johns Road/Palomino Road intersection. In addition to the main campus of the school near 51st Avenue and Gila Crossing Road, there is also a satellite campus on Pecos Road.

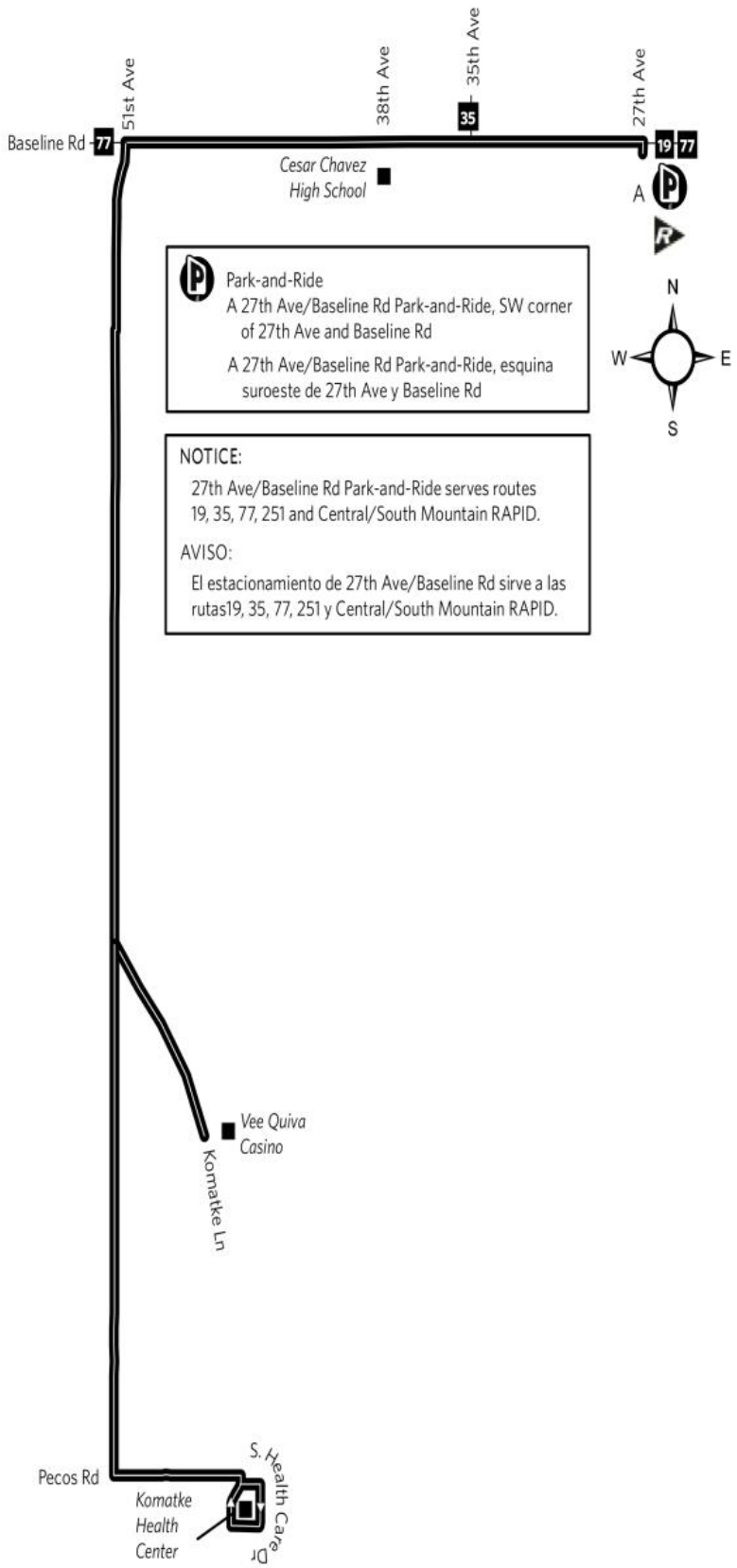
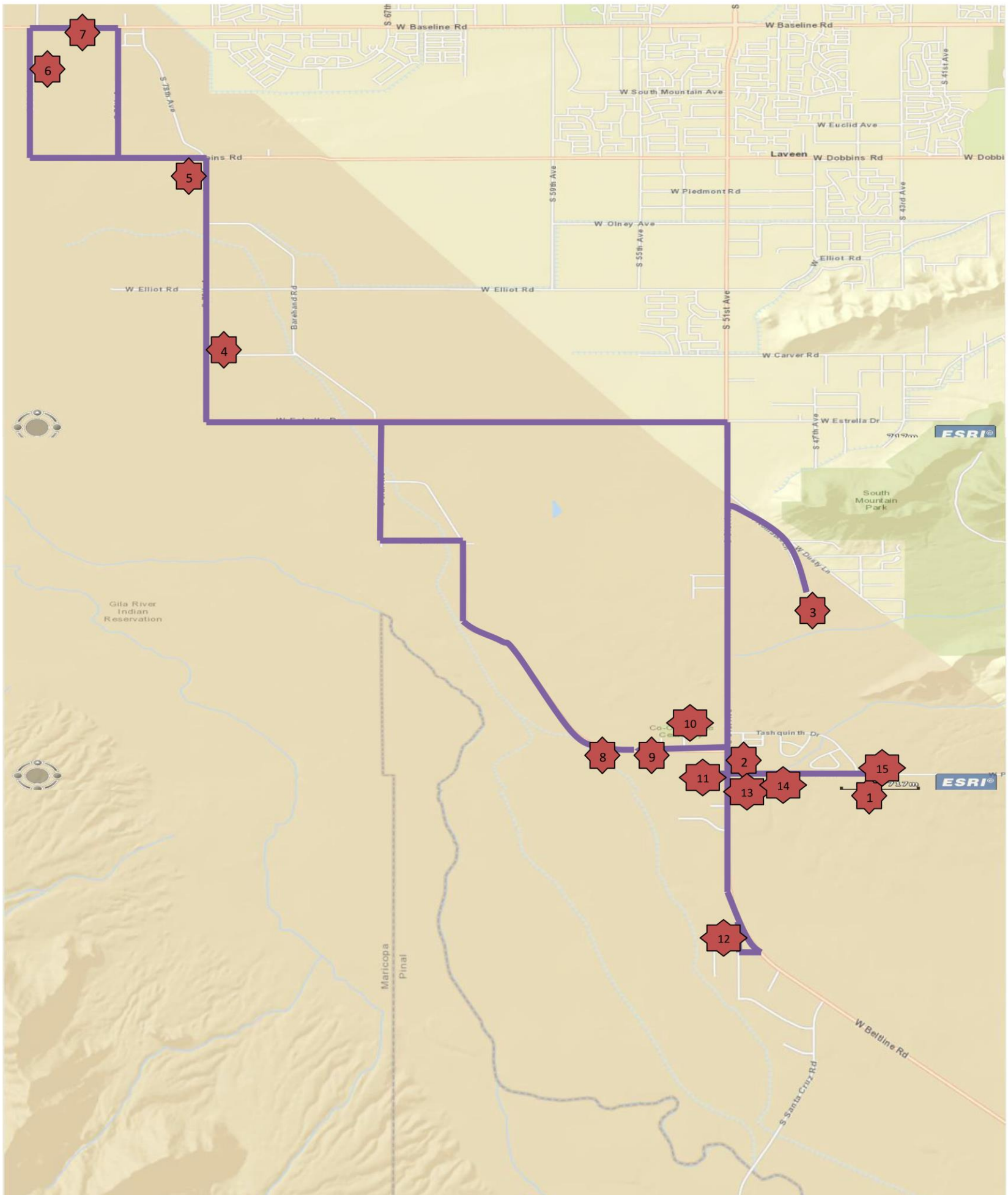


Figure 6-6: Valley Metro Route 251 Route Map



Legend:

Bus Stop

Notes:

- The D6/D7 Circulator Route will begin at the Komatke Health Care Center.
- Go North on 51st Ave to VQ Casino. Continue North on 51st and turn West on Estrella to 75th Ave.
- Turn North on 75th to Dobbins.
- Turn West on Dobbins, then turn North on 83rd.
- Turn East on Baseline, then turn South on 79th.
- Turn East on Dobbins, then South on 75th.
- Turn East on Estrella, then turn South on 67th Ave to continue to St. Johns.
- Turn South on 51st to Dust Devil, go to Gila Crossing School.
- Turn North on 51st and head East on Pecos to Komatke Health Care

Stops	Time	Notes
1. Komatke Health Clinic	:00	At Valley Metro Stop
2. Shell Station	:05	At Valley Metro Stop
3. Vee Quiva Casino	:15	Access to Valley Metro
4. 75th and Carver	:25	
5. 75th and Dobbins	:28	
6. D7 Service Center	:30	
7. Old D7 Service Center	:33	
8. Early Education Center	:49	
9. St. Johns & Palomino	:50	
10. D6 Service Center	:52	
11. D6 Heath Resource Center	:54	
12. Dust Devil Rd	:56	
13. Boys and Girls Club	:57	At Valley Metro Stop
14. Senior Center/Courts	:58	
15. Tashquinth/Dialysis	:59	
1. Komatke Health Clinic	:60	

Figure 6-7: Transit Circulator Route in District 6 and 7

6.3 DRAINAGE AND ENVIRONMENTAL CONDITIONS

6.3.1 CHARACTERISTICS OF THE PHYSICAL, NATURAL, AND CULTURAL ENVIRONMENTS

Biological Resources

The District 6 study area is within the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community. Based on a review of the U.S. Fish and Wildlife Service Threatened and Endangered Species Natural Resources List and aerial photos, it has been determined that there is no suitable habitat for threatened or endangered species in the study area. However, the study area may provide suitable habitat for two candidate species (Sonoran Desert tortoise and Tucson shovel-nosed snake). If there is a federal nexus (federal funding, Section 404 permitting, etc.) then improvements identified in this study will require a biological evaluation by a qualified biologist during the environmental clearance process.

It should be noted that due to the study area's proximity to the Gila River, the Arizona Game and Fish Department's HabiMapTM tool mapped the riparian habitat in the area as potentially suitable for the yellow-billed cuckoo and the Yuma clapper rail; however, based on the review of aerial photography, the potential habitat appears sparse and disturbed and is not suitable for these species.

Section 404/401 of the Clean Water Act

Based on the review of aerial photography, there are washes that could be considered Waters of the United States under the jurisdiction of the U.S. Army Corps of Engineers within the study area. If the proposed improvements will impact these potential Waters of the United States, a Section 404 permit and a Section 401 certification will be required.

Hazardous Materials

The U.S. Environmental Protection Agency Envirofacts website has been reviewed for Environmental Protection Agency regulated facilities in the study area. There are no facilities within the study area and the facilities in the vicinity of the study area are 1) of sufficient distance and/or downgradient from the project area as to not pose an environmental concern; 2) do not have violations; or 3) have completed remediation/compliance.

Cultural Resources

Nine previous archaeological surveys have been conducted within the study area. The study area has been surveyed with the exception of 3.20 acres along 51st Avenue. Three archaeological sites have been recorded within this area. Additional survey of the 3.20 acres that have not previously been surveyed and consultation with the Gila River Indian Community will need to occur when an individual project is at the 30% design plan stage in this area.

6.3.2 DRAINAGE ISSUES AND FLOODING

Existing drainage infrastructure is shown in **Figure 6-8.** It should be noted that flooding, ponding, and sheet flows is a natural occurrence during every rain storm, and is a major problem for the walking community and especially those that do not have transportation, such as the elderly, handicapped, and children. A brief overview of drainage conditions is provided as follows.

St. Johns Road is a two-lane paved road with no shoulders, curb and gutter, or sidewalks on either side of the road. Graded ditches or swales are located on either side of the roadway along limited areas. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. There are no known cross drainage culvert crossings of St. Johns Road. One irrigation canal culvert crossing is located at the eastern end of the road at 51st Avenue. No driveway culverts are provided for residences along the roadway along the eastern portion of the roadway. The roadway in this area is essentially at-grade.

Pecos Road is a two-lane paved roadway with no shoulders. Sidewalks and curb and gutter are located at the curb returns only at the intersection with 51st Avenue. No other sidewalks or curb and gutter are located along Pecos Road. A small retention basin at the Boys and Girls Club fills with stormwater and can potentially flow onto Pecos Road. A wash east of the Boys and Girls Club crosses Pecos Road at-grade. When the wash flows, even with minor flows, pedestrians can find the roadway difficult to traverse. Ditches along the road handle both pavement drainage and local drainage from developments. For example, a drainage channel with culverted driveways is located at the Elderly Center. This drainage channel handles both the pavement drainage and the local drainage from the Center. East of the Gila Crossing Health Care Center, Pecos Road is an unpaved dirt road.

51st Avenue is a paved two-lane road with paved shoulders. The existing roadway does not have curb and gutter or sidewalks on either side of the road except at Pecos Road and at Tashquinth Drive. Graded ditches or swales are located on either side of the roadway along limited areas. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. There are no known cross drainage culvert crossings of 51st Avenue. Approximately 2,240 feet of the roadway lies within the 100-year floodplain for the Gila Drain. 51st Avenue is subject to flooding and inundation from flows from the Gila Drain. A minor drainage cross culvert appears to be located at the Gila Drain and 51st Avenue, and the roadway appears to be relatively at-grade allowing flows to overtop the roadway.

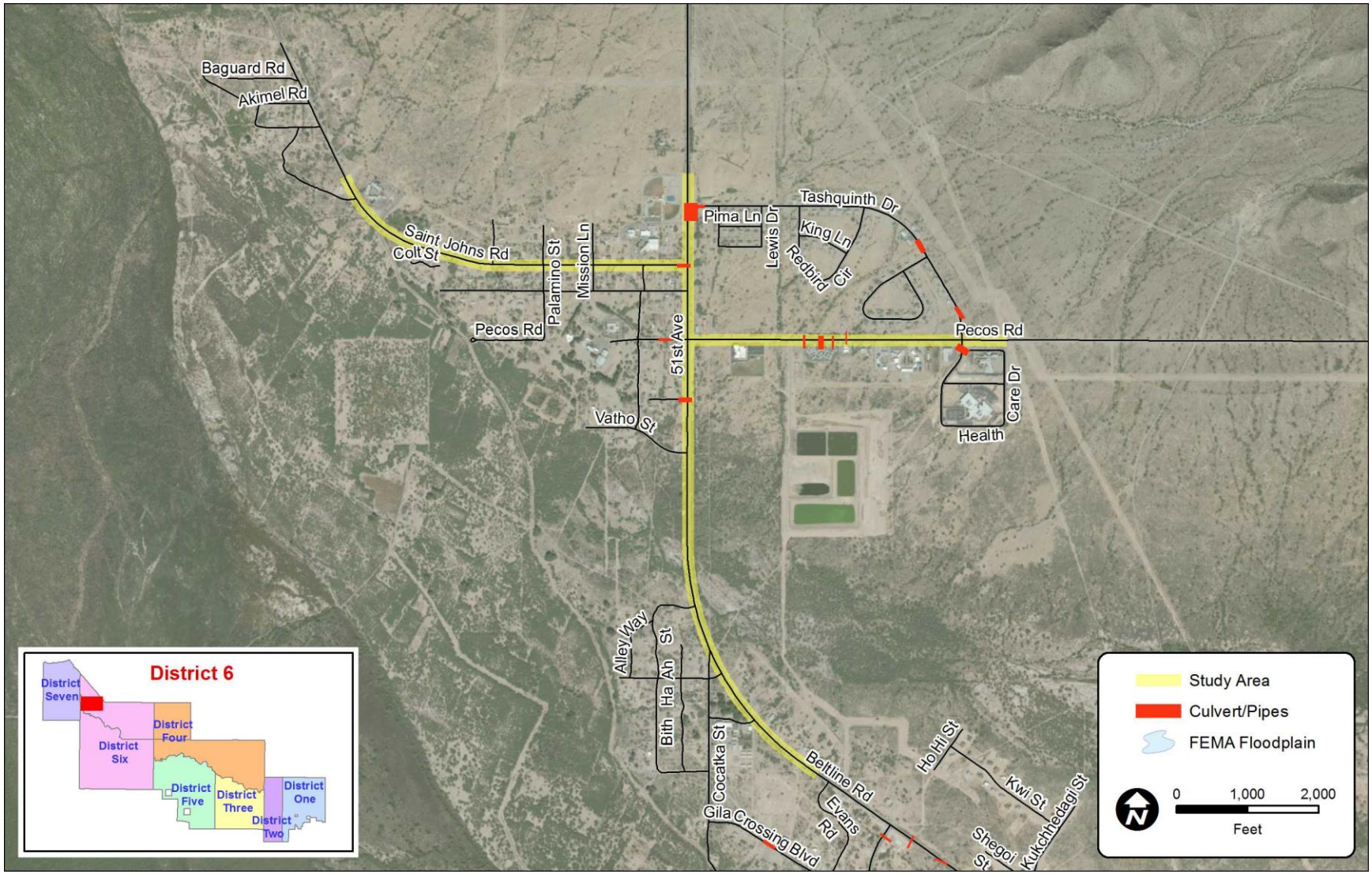


Figure 6-8: District 6 Drainage Infrastructure

6.4 SUMMARY OF PEDESTRIAN SAFETY NEEDS IN DISTRICT 6

Pedestrian safety needs were identified through a process which included extensive public outreach, input from stakeholders, analysis of crash data and road conditions, and analysis of how pedestrian facilities will link residents to activity centers, such as schools, parks, Multipurpose Centers and Service Centers. Safety needs in District 6 are shown graphically in **Figure 6-9**. Key transportation needs are:

51st Avenue

- Provide traffic calming on 51st Avenue. All of the stakeholders mentioned speeding on 51st Avenue as an issue. This road segment is a good candidate for a Road Safety Assessment, which may help justify use of Highway Safety Improvement Funds to fund projects.
- Provide additional street lighting on 51st Avenue within the study area.
- Provide bus shelters at transit stop locations.
- Add sidewalks along 51st Avenue within the study area.
- Provide a pedestrian crossing near the Gila Crossing Community School (This has been constructed in 2014).

Pecos Road

- Add sidewalks on Pecos Road on both sides of the street.
- Provide a crosswalk across from the Boys and Girls Club.
- Additional street lighting is a need. There are children walking in the dark from the Boys and Girls Club, especially in the winter, and it is difficult to see walkers at night.
- Add bus shelters at bus stop locations on Pecos Road.

St Johns Road

- Add street lighting between 51st Avenue and the Head Start.
- Add sidewalks between 51st Avenue and east of Palamino Street. A multi-use trail could be extended further east to the Head Start on St Johns Road.

Drainage

- Add curb and gutter at new sidewalk locations to keep pavement drainage off sidewalks.
- Add new or improved culvert locations at cross drainages and at existing locations to improve the drainage crossings so that pedestrian can walk more easily.

Other Needs

- Add trail connections to provide alternatives to using 51st Avenue. Suggestions include east of 51st Avenue between the Gila Crossing Community School and Tashquinth Drive (already used informally) and a trail from Vatho Street to the District Service Center on St. Johns Road.
- Provide sidewalks on Tashquinth Drive.

6.5 RECOMMENDED IMPROVEMENTS TO MEET IDENTIFIED NEEDS

A program of improvements has been developed to address pedestrian safety needs. An overview of the projects is presented in **Figure 6-10**. Following this table are project information sheets describing recommended improvement projects on each roadway. These improvement projects are summarized in **Table 6-6**. It should be noted that a summary of recommended drainage improvements is provided in **Appendix B**. This Appendix also provides maps of the drainage improvements.

6.5.1 STUDENT PEDESTRIAN SAFETY

One emphasis of the study has been the identification of pedestrian safety improvements to enhance safety for school children. This included investigating potential improvements for school bus stop locations, based on discussions with school transportation providers and the Tribal Youth Council. Two locations for transit stops, which may also have potential for school bus stops, were located at the intersection of Pecos Road and 51st Avenue. In addition, transit shelters are recommended on 51st Avenue at the Tashquinth Drive and St Johns Road intersections.

It should be noted that the pedestrian counts taken for this study showed the highest pedestrian crossing volumes on Pecos Road, across from the Boys and Girls Club. In recognition of the high student crossing volumes here, a number of pedestrian enhancements are recommended in this area.

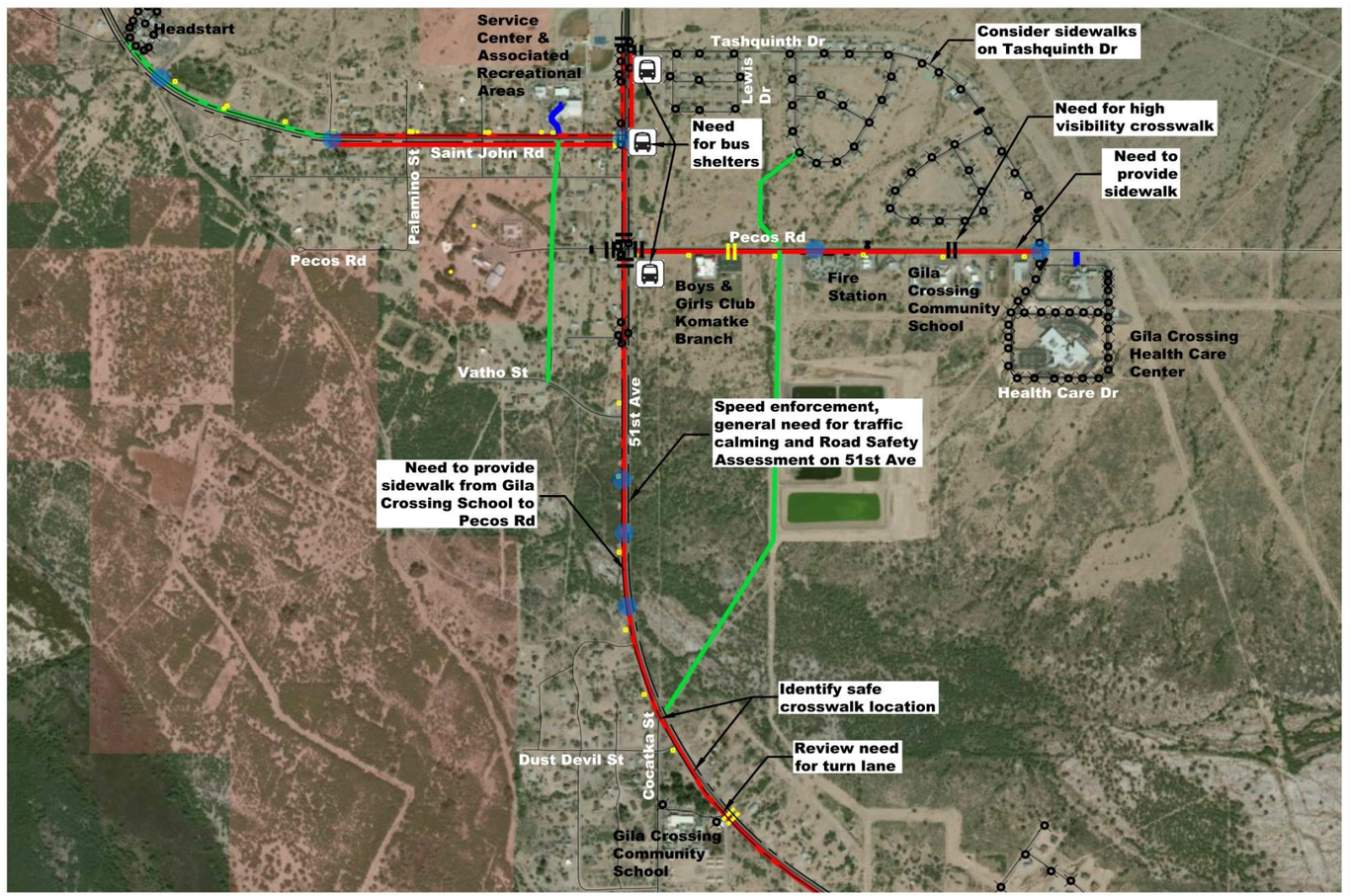
6.5.2 ACCESS MANAGEMENT TECHNIQUES FOR PEDESTRIAN SAFETY

As further development occurs in the Community, access management techniques can be used to help improve pedestrian safety. Examples of access management techniques are:

- Reducing the number of driveways, within a given distance (per block or mile) through provisions of frontage roads and closing multiple driveways that serve one location.
- Providing greater separation between driveways.
- Providing a safe refuge for pedestrian crossings with raised medians.
- Providing right-turn lanes for high-volume driveways.
- Constructing a landscaped or other clearly marked buffer helps to visually define sidewalk and driveway locations.
- Providing a clear zone free of visual obstructions such as signs, large trees and bushes, or parked vehicles, which will allow pedestrians to be seen by drivers and to see oncoming vehicles.

Access management opportunities in the District 6 study area and how they are addressed in this plan are:

- 51st Avenue (Gila Crossing Drive to Tashquinth Drive) – An opportunity for a school crossing for the Gila Crossing Community School was identified and has been implemented by Maricopa County during the course of the study.
- Pecos Road – Pedestrians travel to the many land uses that are located on the south side of Pecos Road and sidewalks were recommended as well as a crosswalk (when warranted) by the Boys and Girls Club.
- St. Johns Road – A sidewalk is recommended on one side of the street. Residential driveways are located primarily on the south side of the street.



District 6 Study Area

Note: Symbols are schematic only (not to scale)

Figure 6-9: District 6 Pedestrian Needs

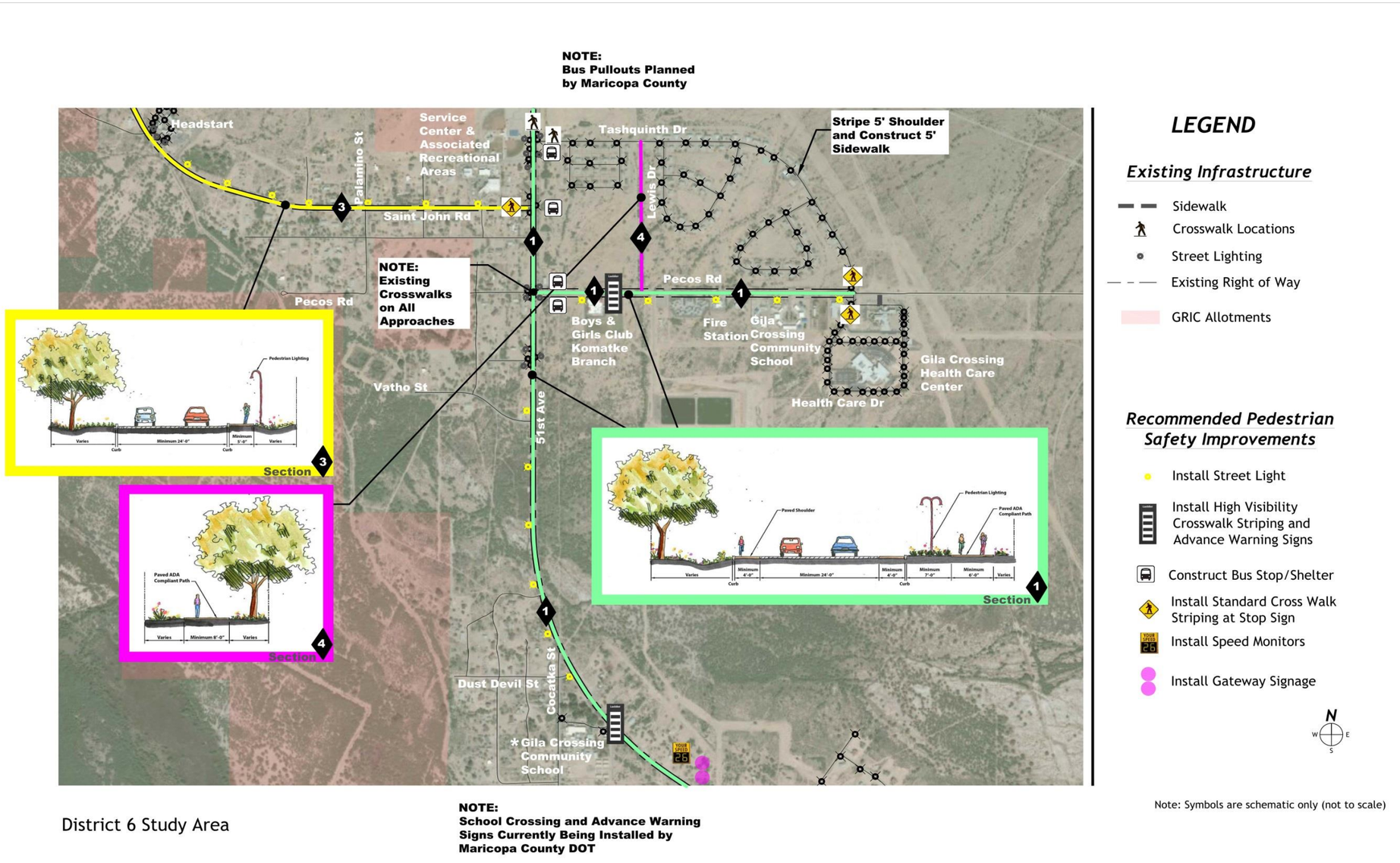


Figure 6-10: District 6 Recommended Pedestrian Safety Improvements

Table 6-6: District 6 Recommended Pedestrian Safety Improvement Projects

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Pecos Road (Rte 32)				
Construct sidewalk on one side of road with curb and paved shoulder.	51st Avenue to Tashquinth Drive	0. 73	Asphalt – 760,000 Concrete – 980,000	Costs include sidewalk paving option (asphalt or concrete), three drainage pipe replacements and relocations, and miscellaneous signing.
Stripe and provide advance signing for high visibility north-south crosswalk at Boys and Girls Club (1 location).	N/A	N/A	3,000	This mid-block crossing must be warranted before it can be constructed.
Construct street lighting	51st Avenue to Tashquinth Drive	0. 73	235,000	Assumes solar lighting at 200 foot spacing.
Construct bus pad and shelters (one location with pad and shelter (north side of street) one location with shelter (south side of street).	Pecos Road at 51st Avenue (north and south sides of street)	N/A	18,000	This is to support travel on the Tribal transit system, but could also support travel on the Valley Metro System as well as school bus travel.
51st Avenue (Rte 2638)				
Construct sidewalk on one side of road, with curb and gutter.	Gila Crossing Road to Tashquinth Drive	1.41	Asphalt – 645,000 Concrete – 820,000	Costs include sidewalk paving option (asphalt or concrete), curbing, and miscellaneous signing.
Install school crosswalks and advance warning signs at Gila Crossing School	51st Avenue/Gila Crossing Road vicinity	N/A		Planned to be installed summer 2014 by Maricopa County.
Construct street lighting	Gila Crossing Road to Tashquinth Drive	1.41	445,000	Assumes solar lighting at 200 foot spacing.
Construct bus pad and shelters (two locations)	51st Avenue/ Tashquinth Drive and 51st Avenue /St. Johns Road	N/A	22,000	This is to support travel on the Tribal transit system, Valley Metro System, and school buses.

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
St Johns Road (Rte 3870)				
Construct sidewalk on one side of road	51st Avenue to 0.7 miles north of Squawberry Circle	1.3	Asphalt – 590,000 Concrete – 825,000	Costs include sidewalk paving option (asphalt or concrete), curb, one drainage pipe extension, new pipes (3-24" corrugated metal pipes), and signing.
Construct street lights	51st Avenue to 0.7 miles north of Squawberry Circle	1.3	410,000	Assumes solar lighting at 200 foot spacing.
Install crosswalks at the stop sign at 51st Avenue (1 locations)		N/A	1,000	
Other pedestrian projects				
Construct path on Lewis Road alignment, between Pecos Road and Tashquinth Drive	Lewis Rd alignment	0.35	Asphalt – 60,000 Concrete – 165,000	Costs include grading for path, paving option, and miscellaneous path signing. It also includes aggregate base for the asphalt path option.
Tashquinth Drive Sidewalk	51st Avenue to Pecos Road		220,000	Assume 5–foot concrete sidewalk to match existing sidewalk connection.

*Note: costs are based on 2014 estimated costs and include a 30% contingency to account for mobilization (8%), miscellaneous work (12%), construction surveying and layout (2%), erosion control (1%), contractor quality control (2%), furnish water supply (1%), and maintenance and protection of traffic (4%). See **Appendix B** for further information regarding recommended drainage improvements.

Project Information Sheet – 51st Avenue (Rte 2638)

Project Name	51st Avenue Pedestrian Safety Improvements		
Project Location	51st Avenue, Gila Crossing Road to Tashquinth Drive (1.41 miles)		
Roadway Ownership	Bureau of Indian Affairs ☐	Tribal ☐	Maricopa County ☒
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Path Construct sidewalk on one side of road with curb and gutter.		
	Lighting Construct street lighting.		
	Crosswalks: School crosswalk and advance signing at Gila Crossing Community School (completed in 2014).		
	Traffic Calming: Implement speed control devices such as portable radar signs. Provide speed enforcement periodically.		
	Bus Stop Amenities Provide bus shelters at planned tribal bus stops at 51st Avenue/Tashquinth Drive and 51st Avenue/St. Johns Road.		
Project Justification	51st Avenue is a rural minor arterial street that carries between 7,600- 8,900 vehicles per day.		
Cost Estimate	See Table 6-6		
Potential Funding Sources	Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	Planned improvements by Maricopa County on 51st Avenue include a new school crosswalk to serve the Gila Crossing Community School and bus pullouts at Bunn and Judem Street. Further drainage study will be required to develop new concrete box culverts to accommodate the Gila Floodway.		

51st Avenue, looking north towards Pecos Road intersection.

Project Information Sheet – Pecos Road (Rte 32)

Project Name	Pecos Road Pedestrian Safety Improvements		
Project Location	51st Avenue to Tashquinth Road (0.73 miles)		
Roadway Ownership	Bureau of Indian Affairs ☐	Tribal ☒	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Path: Construct sidewalk on one side of the road, shoulders, and curb.		
	Drainage Improvements: Three drainage pipe replacements and relocations. Further drainage study will be required to determine sizing of new concrete box culverts to match upstream existing box culverts below Tashquinth Drive.		
	Street Lighting Install solar lighting.		
	Crosswalks: Stripe high visibility crosswalk and provide advance signing at Boys and Girls Club when warranted.		
	School and Transit: Provide bus shelters and pads on Pecos Road near 51st Avenue to support Tribal transit system, Valley Metro System stops, and school bus trips.		
Project Justification	Pecos Road serves many activity centers including the Boys and Girls Club, Gila Crossing Community School, Komatke Senior Complex, Komatke Health Center, and other locations. There is a significant pedestrian traffic crossing Pecos Road from the activity centers on the south side of the street to the residential areas around Tashquinth Drive.		
Cost Estimate	Table 6-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	A project to install sidewalk, curb, gutter, a box culvert, and chip seal is included in the Tribal TIP in fiscal year 2016.		

The Boys and Club is a key activity center on Pecos Road

Pecos Road and 51st Avenue intersection, showing Valley Metro bus stop

Project Information Sheet - St Johns Road (Rte 3870)

Project Name	St. Johns Road Pedestrian Safety Improvements		
Project Location	St. Johns Road, 51st Avenue to 0.07 mi north of Squawberry Circle. (1.30 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Path: Construct sidewalk on one side of road, with curb and gutter.		
	Drainage Improvements: Extend pipe at one location and construct new pipes (3-24" corrugated metal pipe).		
	Street Lighting Install solar street lights.		
	Crosswalks: Stripe crosswalk at the stop sign at 51st Avenue.		
	Traffic Calming: Provide gateway signs to let drivers know they are entering a Community area. Implement speed control devices such as portable radar signs. Provide speed enforcement periodically.		
Project Justification	St. Johns Road is a rural local road. A path on this road will provide access to homes, as well as the District 6 Service Center and the District 6 Head Start.		
Cost Estimate	Table 6-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		

St Johns Road, Looking west

Project Information Sheet-Tashquinth Drive

Project Name	Tashquinth Drive Pedestrian Safety Improvements		
Project Location	Tashquinth Drive , 51st Avenue to Pecos Road (0.95 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Path: Construct sidewalk on both side of road (existing curb in place).		
	Drainage Improvements: Extend drainage pipe at three locations.		
Project Justification	Tashquinth Drive is a residential street with a discontinuous sidewalk system.		
Cost Estimate	Table 6-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		

Tashquinth Drive, looking east

Project Information Sheet- Path on Lewis Road alignment

Project Name	Lewis Road Pedestrian Safety Improvements		
Project Location	Lewis Road, Pecos Road to Tashquinth Drive (0.35 miles)		
Roadway Ownership	Bureau of Indian Affairs ☐	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☐	Gravel ☐	Dirt ☒
Project Description	**Project Components**		
	Sidewalk and Path: Construct path on Lewis Road alignment.		
Project Justification	This route is used as an informal path between the Boys and Girls Club and homes on Tashquinth Drive.		
Cost Estimate	Table 6-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		

View looking north from Pecos Road, showing Lewis Road alignment

6.6 IMPROVEMENT PROJECT PRIORITIZATION

The transportation improvement projects will address critical pedestrian and bicycle needs.
A matrix has been developed to assign the priorities for various improvement project elements into short, mid- or long range time frames. The prioritization is summarized in **Table 6-7**. However, as funding becomes available, or priorities change, these projects can be re-prioritized.

Table 6-7: District 6 Pedestrian Safety Improvements Prioritization

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Pecos Road, 51st Avenue to Tashquinth Drive																		
Construct path on one side of road	3	2	0	1	4	1	2	2	2	2	2	2	2	0	2	28	Short	Pro-grammed in TTIP[1]
Construct north/south crosswalk at Boys and Girls Club (1 location)	3	2	0	1	4	4	2	2	1	2	2	2	2	5	1	33	Short	Crosswalk to be installed only when warranted.
Construct street lighting	3	2	0	1	4	1	2	2	1	2	2	2	2	0	1	27	Mid	
Construct bus pad and shelters (two locations)	3	2	0	1	4	3	2	2	1	2	2	2	2	5	2	33	Short	
51st Avenue, Gila Crossing Road to Tashquinth Drive																		
Construct sidewalk on one side of road	1	2	2	2	5	1	2	2	2	2	2	2	2	0	1	28	Mid	
Install school crosswalks and advance warning signs at Gila Crossing School	1	2	2	2	5	4	2	2	1	2	2	2	2	5	2	36	Short	Completed by Maricopa DOT

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Construct street lighting	1	2	2	2	5	1	2	2	1	2	2	2	2	0	1	27	Mid	
Construct bus pad and shelter (two locations)	1	2	2	2	5	3	2	2	1	2	2	1	2	5	2	34	Short	
St Johns Road																		
Construct sidewalk on one side of road	3	2	0	2	4	1	2	2	2	2	2	2	2	0	1	27	Mid	
Construct street lights	3	2	0	2	4	1	2	2	1	2	2	2	2	0	1	26	Mid	
Install crosswalks at the stop sign at St Johns Rd (1 location)	3	2	0	2	4	5	2	2	1	2	2	2	2	5	1	35	Short	
Other Projects																		
Construct path on Lewis Road alignment, Pecos Road to Tashquinth Drive	3	2	0	1	1	1	2	2	2	2	2	2	2	0	1	23	Long	
Tashquinth Drive sidewalks	4	2	0	1	2	1	2	2	2	2	2	2	2	5	1	30	Short	

[1] Tribal Transportation Improvement Program

7 District 7

7.1 DISTRICT 7 STUDY AREA AND OVERVIEW

District 7 sits in the westernmost part of the reservation at the base of the Estrella Mountains and is home to the Maricopa. In early days the Maricopa grouped together in small bands living along the lower Gila and Colorado rivers. Each of these bands migrated eastward at different times. The last of these bands left the Colorado River in the late 1830s. Eventually these bands came together and settled in the area.

The study area roads are shown in **Figure 7-1** and include the following:

- Baseline Road (Maricopa County Route 178 from 91st Avenue to 67th Avenue)
- 83rd Avenue (BIA Rte 2731)

7.1.1 DISTRICT 7 MASTER PLAN

Key objectives of the District 7 Master Plan relating to the goal of providing a safe environment for pedestrians and bicyclists include the following:

- Support the development of a Reservation-wide trail system.
- Establish a network of sidewalks and/or pathways that connect public facilities, amenities, and transit opportunities.
- Develop a multi-use trail program (hike, bike, equestrian, etc.) that connects major activity centers.
- Develop an interpretive equestrian trail into the Sierra Estrella Mountains.
- Promote pedestrian safety by providing low-level lighting along sidewalks.
- Utilize striping to designate bike lanes on existing roadways as appropriate.
- Provide covered school bus stops to keep children safe.

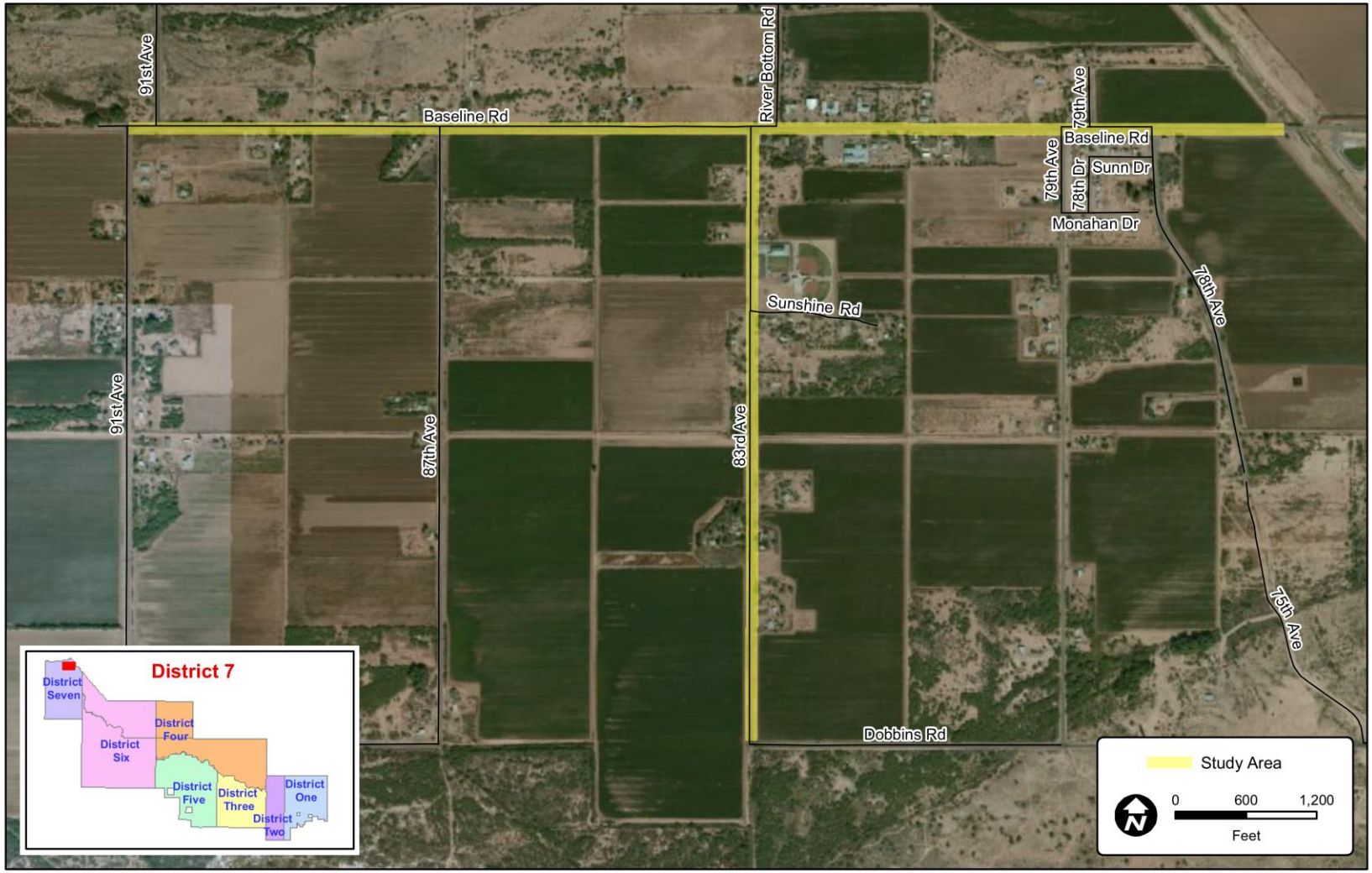


Figure 7-1: District 7 Study Area Roads

7.1.2 EXISTING LAND USE AND ACTIVITY CENTERS

Land use along **Baseline Road** is a mix of residential, public, and agricultural land uses. The District 7 Service Center is located on Baseline Road.

On **83rd Avenue**, key land uses include a ball field/recreational area, the District 7 Multipurpose Center, and agricultural and residential land uses.

Key activity centers are shown in **Figure 7-2**.

7.1.3 FUTURE PLANNED LAND USE AND ACTIVITY CENTERS

A housing project reconstruction is currently under construction in the area bounded by Baseline Road, 78th Avenue, 79th Avenue, and Monahan Drive. Sidewalks are planned as part of the improvements within the housing area.

A new fire station is planned in the future on Dobbins Road and 75th Avenue; new housing is also planned in this area.

The District Master Plan discussed a future potential mixed-use development on the far northeast corner of the District, on either side of Baseline Road.

The Reservation-wide trail system shows planned trails on Baseline Road and 83rd Avenue, as well as on Dobbins Road and 79th Avenue. The proposed trail system in District 7 is shown in **Figure 7-3**.

7.1.4 POPULATION LOCATION IN DISTRICT 7

Population density, according to the number of persons within a census block in the 2010 U.S. Census, is shown in **Figure 7-4**. The graphic shows the census block boundaries in dashed red lines.

The densest population in the study area is the area bounded by Baseline Road, 91st, 83rd, 79th Avenue, and Monahan Drive.

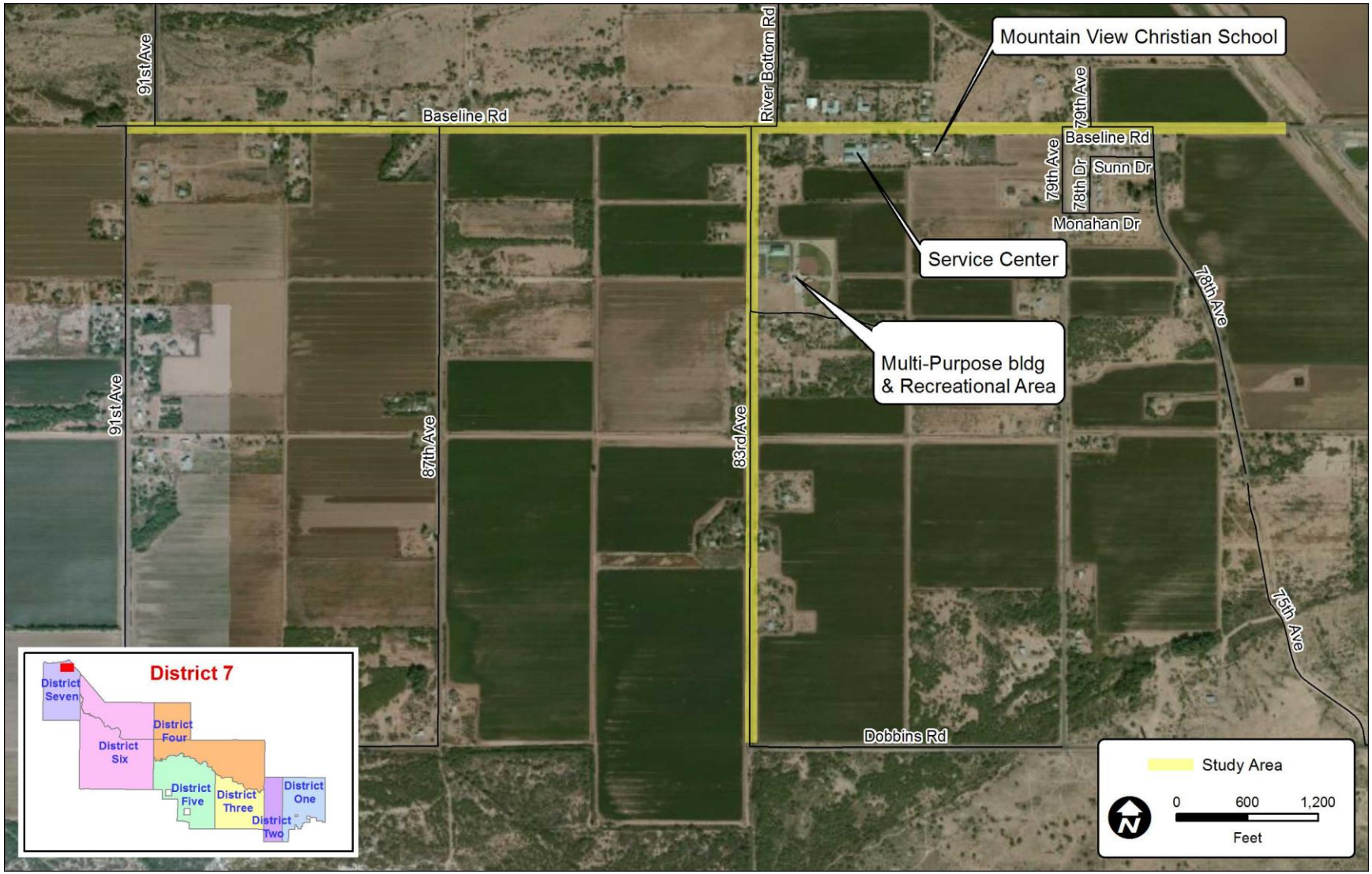
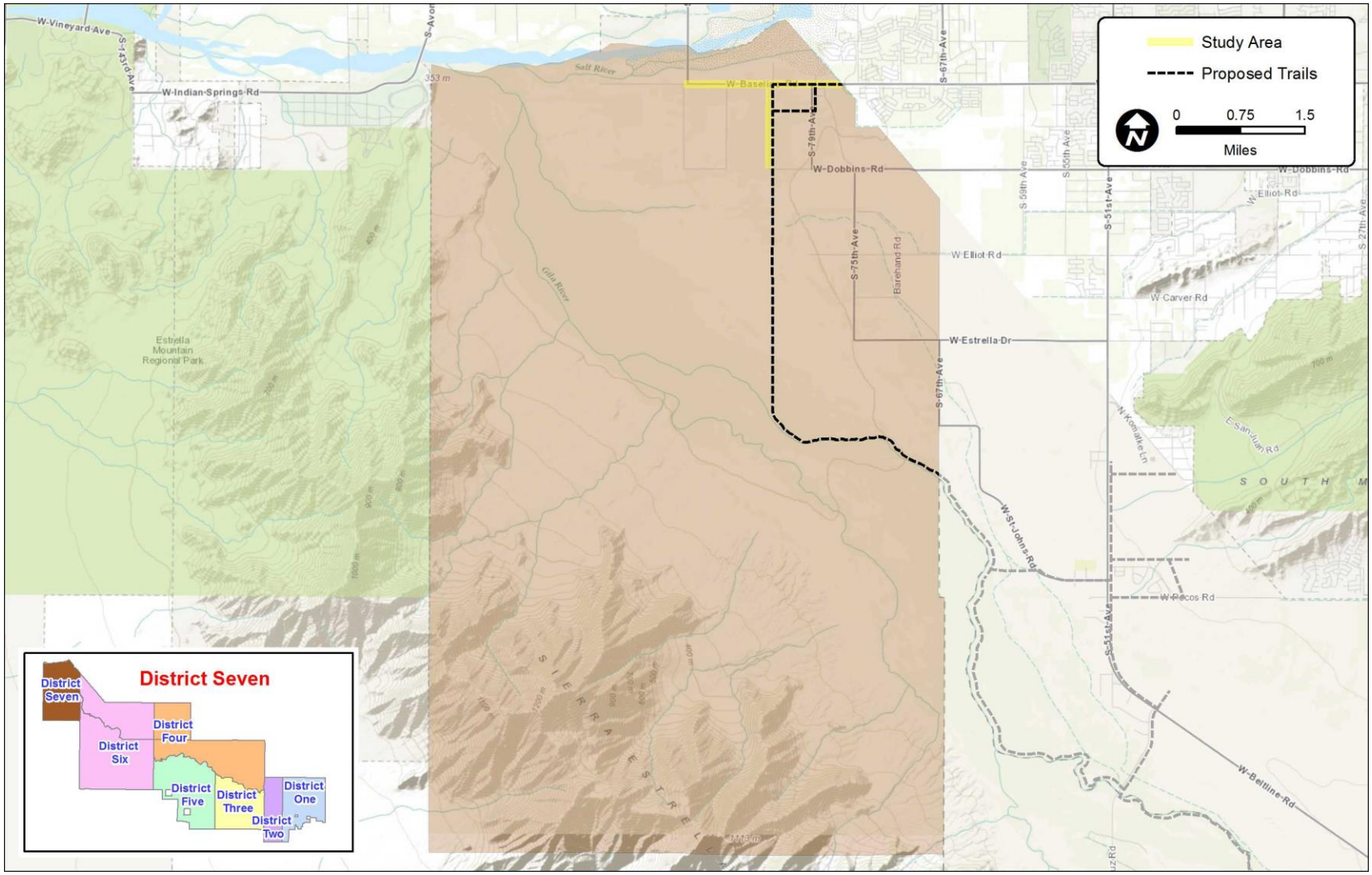


Figure 7-2: District 7 Activity Centers



Source: District 7 Master Plan

Figure 7-3: Proposed Reservation-Wide Trail System in District 7

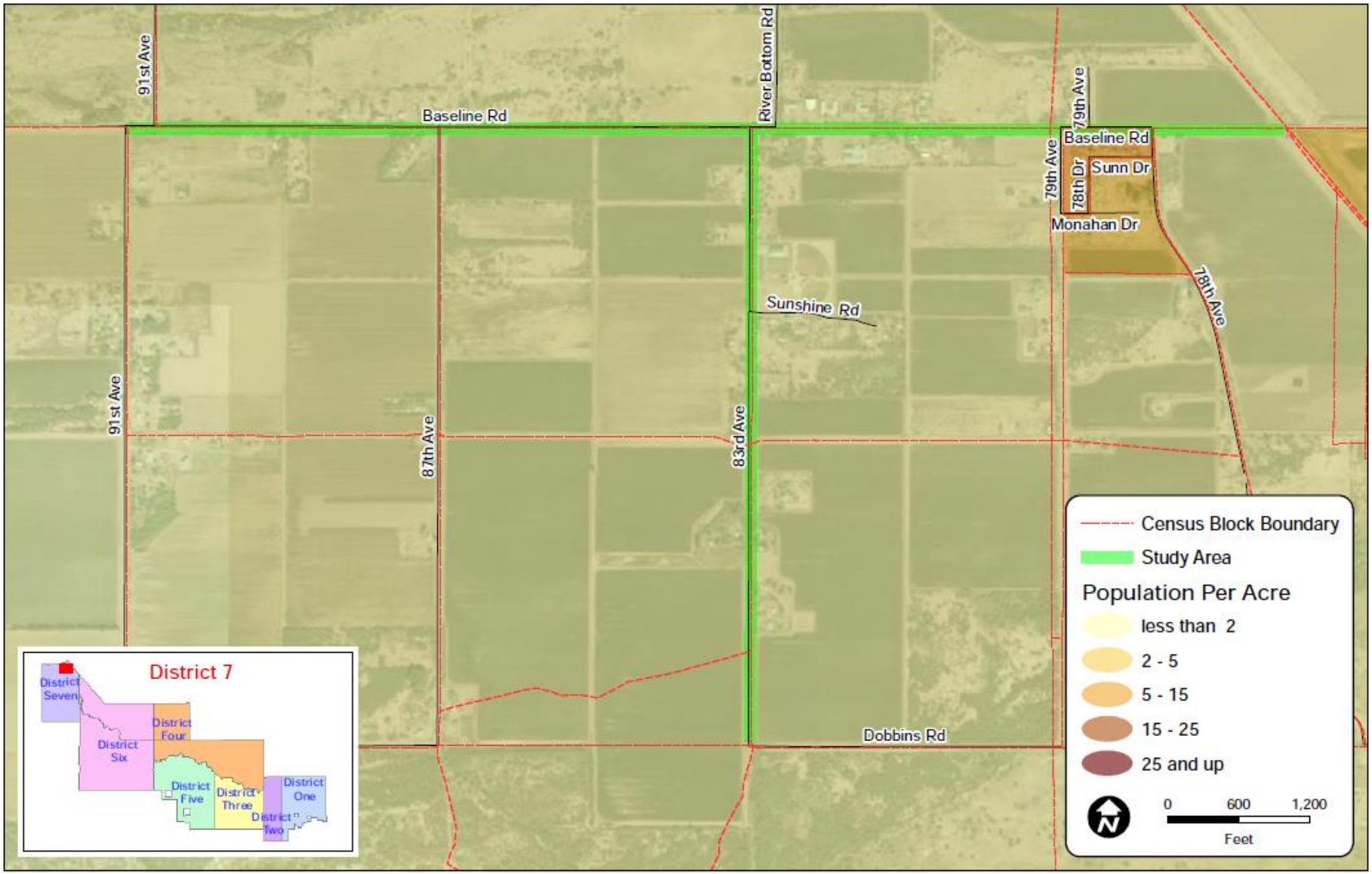


Figure 7-4: District 7 Population Location

7.2 EXISTING TRANSPORTATION CONDITIONS RELATING TO PEDESTRIANS AND BICYCLISTS

7.2.1 EXISTING STREET SYSTEM

Key roads in the study area are described below.

Baseline Road (Rte 178) is a two-lane roadway, with a posted speed of 35 mph in the study area. The edgeline of the road is striped, but there are limited or no shoulders. 2013 average daily traffic volumes are approximately 4,400 vehicles per day.

83rd Avenue (Rte 2731) is a two-lane roadway with no shoulders. Average daily traffic volumes on 83rd Avenue near Dobbins Road are approximately 1,300 vehicles per day. It is anticipated that traffic volumes will increase on this road as persons travel to the new Multipurpose Center, which opened in fall 2014.

A stop sign is located on the south leg of the 83rd Avenue/Baseline Road intersection.

7.2.2 PEDESTRIAN, BICYCLE, AND VEHICLE TRAFFIC COUNTS

Pedestrian, bicycle, and traffic counts were collected at the intersection of Baseline Road and 83rd Avenue. There were few pedestrians at that time (May 2014), however, it is anticipated that pedestrian travel in the area will increase over time, particularly since the new District 7 Multipurpose Center on 83rd Avenue will attract pedestrians (It opened in fall, 2014). The counts are shown in **Table 7-1**.

Table 7-1: 2014 Pedestrian, Bicycle, and Vehicle Traffic Counts

		NORTHBOUND			EASTBOUND			WESTBOUND		
Location	**Time period**	**Traffic volumes**	**Pedestrians crossing east-west**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**	**Traffic volumes**	**Pedestrians crossing north-south**	**Bicyclists**
Baseline Road / 83rd Avenue	4 p.m.-6 p.m.	204	0	0	334	0	0	514	3	1

Source: Counts conducted on May 13, 2014

7.2.3 LEVEL OF SERVICE

The Level of Service for Baseline Road and 83rd Avenue is in the A-C range.

7.2.4 ACCESS MANAGEMENT

The project team reviewed the number of driveway openings and intersections on each of the study area roads to determine whether there may be opportunities to improve pedestrian safety through access management. A brief overview of access points on each road and access management considerations on each road is provided in **Table 7-2.**

Table 7-2: Access Characteristics on Study Area Roads

ROAD NAME	NUMBER OF DRIVEWAY OPENINGS	NUMBER OF INTERSECTING STREETS	ISSUES AND OPPORTUNITIES
Baseline Road	north side: 22 driveways south side: 5 driveways	north side: 2 (83rd Ave and 79th Ave). south side: 4 (87th Ave, 83rd Ave, 79th Ave and 78th Ave).	There are a number of connected driveways that serve approximately five homes that may have potential to reduce the number of driveways that access Baseline Road. Fewer driveways mean less potential vehicle conflicts for pedestrians and bicyclists.
83rd Avenue	east side: 11 driveways west side: 4 driveway openings	east side 1 intersection on the west side of the street (91st Ave). west side 1 intersection on the east side of the street (91st Ave)	There will be more pedestrian crossing activity and pedestrian crosswalk locations will need to be considered when activity patterns are established for the Multipurpose Center (opened in fall 2014).

7.2.5 ROAD WIDTHS AND RIGHT-OF-WAY WIDTHS

Current road widths and right-of-way widths are summarized in **Table 7-3.**

Table 7-3: Roadway and Right-of-Way Widths

ROAD NAME	ROADWAY WIDTH (FEET)	RIGHT-OF-WAY WIDTH (FEET)
Baseline Road	24 (18 on the BIA route segment)	60
83rd Avenue	24*	60

Source: Tribal Transportation Inventory, except where noted.
*Based on measurement from Google Earth

7.2.6 PLANNED ROAD IMPROVEMENT PROJECTS

In the Gila River Indian Community Transportation Study (2011), two projects were identified in District 7:

- West Baseline Road – Construct two-way left-turn lanes, shoulders, and street lights.
- 83rd Avenue and Dobbins Road – Reconstruct intersection.

7.2.7 FUNCTIONAL CLASSIFICATION

Table 7-4 summarizes the BIA roadway functional classifications for study area roads. With respect to federal functional classification, Baseline Road is classified as an urban collector road.

Table 7-4: Tribal Transportation Inventory Functional Classification

DISTRICT 7 STUDY AREA ROADS	CLASS	DESCRIPTION
Baseline Road (Maricopa County segment from 51st Avenue to 67th Avenue)	2	Rural minor arterial roads providing an integrated network having the characteristics for serving traffic between large population centers, generally without stub connections. May also link smaller towns and communities to major resort areas that attract travel over long distances and generally provide for relatively high overall travel speeds with minimum interference to through traffic movement. Generally provide for at least inter-county or interstate service and are spaced at intervals consistent with population density. This class of road will have less than 10,000 vehicles per day.
83rd Avenue Baseline Road (BIA road segment)	5	Rural local road that is either a section line and/or stub type roads, make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. Also included are roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes.

Source: Tribal Transportation Inventory

7.2.8 PAVEMENT CONDITIONS

Pavement conditions for study area roads are summarized in **Table 7-5**.

Table 7-5: Pavement Conditions

ROAD NAME	ROADBED CONDITION CODE IN THE TRIBAL TRANSPORTATION INVENTORY	DESCRIPTION OF PAVEMENT CONDITIONS, BASED ON REVIEW OF AERIALS
Baseline Road (Rte 178)	Not available	Road condition appears to be good from review of aerials
83rd Avenue (Rte 2731)	4-A designed and constructed roadbed with some drainage and alignment improvements required.	Some longitudinal cracking and transverse cracking that appears to be patched

Source: Tribal Transportation Inventory and visual inspection of aerial.

7.2.9 EXISTING SIDEWALKS AND CROSSWALKS

No sidewalks or crosswalks are located on the study area road segments.

7.2.10 EXISTING STREET LIGHTING

Street lighting is located in the residential area bounded by Baseline Road, 78th Avenue, 79th Avenue, and Monahan Drive, as shown in the District 7 pedestrian safety needs map in **Figure 7-7.**

7.2.11 CRASH DATA

ADOT crash data has been obtained and analyzed for pedestrian and bicycle crashes within the Community. The crash data spanned a five-year span from January 1, 2009 to February 4, 2014. There were no pedestrian- or bicycle-related crashes within the District 7 study area.

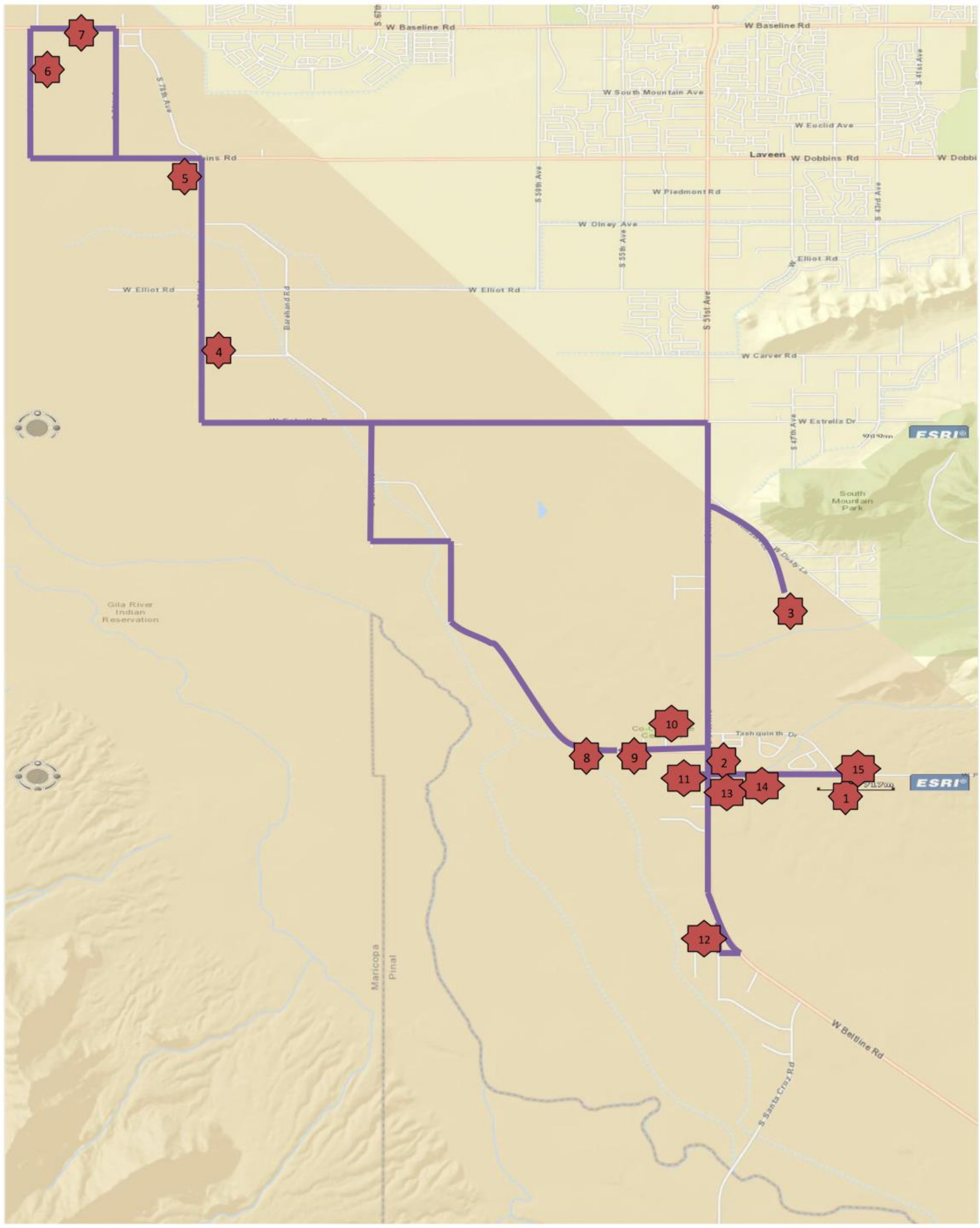
7.2.12 TRANSIT AND SCHOOL BUS ROUTES AND STOPS

The Gila River Indian Community Department of Transportation is in the process of developing a transit circulator system in Districts 3, 6, and 7. Planned bus stops are shown in **Figure 7-5**. In District 7 these stops are located at the District 7 Service Center and at the new Multipurpose Center. If pads and shelters are installed in the future at these location (initially there will be bus stop signs only), these stops can also serve as school bus stops, if students live near these stops.

Valley Metro Transit Route 77 runs on Baseline Road, but the western terminus of the route ends at 75th Avenue, which is east of the Reservation boundary.

With respect to school district transportation, First Student is a company which provides school bus transportation for some of the high schools in the area, including Cesar Chavez High School and Betty Fairfax High School. First Student staff indicated that school bus stops change from year to year, and there are a number of bus pickups at residences. Stops in the study areas that were mentioned included Baseline Road and 79th Avenue and 83rd Avenue and Dobbins Road.

The Maricopa Village School is located on the south side of Baseline Road, between 79th Avenue and 83rd Avenue. This school has approximately ten to twelve students in grades kindergarten through 6th grade and personnel indicated that all the students are bused from their homes. Staff indicated that occasionally parents walk to the school for school meetings or events. They were interested in implementing a school speed zone area in front of the school, but did not see the need for a school crosswalk.



Legend:

Bus Stop

Notes:

- The D6/D7 Circulator Route will begin at the Komatke Health Care Center.
- Go North on 51st Ave to VQ Casino. Continue North on 51st and turn West on Estrella to 75th Ave.
- Turn North on 75th to Dobbins.
- Turn West on Dobbins, then turn North on 83rd.
- Turn East on Baseline, then turn South on 79th.
- Turn East on Dobbins, then South on 75th.
- Turn East on Estrella, then turn South on 67th Ave to continue to St. Johns.
- Turn South on 51st to Dust Devil, go to Gila Crossing School.
- Turn North on 51st and head East on Pecos to Komatke Health Care

Stops	Time	Notes
1. Komatke Health Clinic	:00	At Valley Metro Stop
2. Shell Station	:05	At Valley Metro Stop
3. Vee Quiva Casino	:15	Access to Valley Metro
4. 75th and Carver	:25	
5. 75th and Dobbins	:28	
6. D7 Service Center	:30	
7. Old D7 Service Center	:33	
8. Early Education Center	:49	
9. St. Johns & Palomino	:50	
10. D6 Service Center	:52	
11. D6 Heath Resource Center	:54	
12. Dust Devil Rd	:56	
13. Boys and Girls Club	:57	At Valley Metro Stop
14. Senior Center/Courts	:58	
15. Tashquinth/Dialysis	:59	
1. Komatke Health Clinic	:60	

Figure 7-5: Transit Circulator Route in Districts 6 and 7

7.3 DRAINAGE AND ENVIRONMENTAL CONDITIONS

7.3.1 CHARACTERISTICS OF THE PHYSICAL, NATURAL, AND CULTURAL ENVIRONMENTS

Biological Resources

The District 7 study area is within the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community. Based on a review of the U.S. Fish and Wildlife Service Threatened and Endangered Species Natural Resources List and aerial photos, it has been determined that there is no suitable habitat for threatened or endangered species in the study area. However, the study area may provide suitable habitat for two candidate species (Sonoran Desert tortoise and Tucson shovel-nosed snake). If there is a federal nexus (federal funding, Section 404 permitting, etc.) then improvements identified in this study will require a biological evaluation by a qualified biologist during the environmental clearance process.

It should be noted that due to the study area's proximity to the Gila River, the Arizona Game and Fish Department's HabiMapTM tool mapped the riparian habitat in the area as potentially suitable for the yellow-billed cuckoo and the Yuma clapper rail; however, based on the review of aerial photography, the potential habitat appears sparse and disturbed and is not suitable for these species.

Section 404/401 of the Clean Water Act

Based on the review of aerial photography, there are no natural washes that could be considered Waters of the United States under the jurisdiction of the Army Corps of Engineers within the study area; however, it is recommended that this be reevaluated as recommended improvement projects are designed.

Hazardous Materials

The U.S. Environmental Protection Agency Envirofacts website has been reviewed for Environmental Protection Agency regulated facilities in the study area. There are no facilities within the study area and the facilities in the vicinity of the study area are 1) of sufficient distance and/or downgradient from the project area as to not pose an environmental concern; 2) do not have violations; or 3) have completed remediation/compliance.

Cultural Resources

Ten previous archaeological surveys have been conducted within the study area. The study area has been surveyed with the exception of 7.74 acres along Baseline Road and 83rd Avenue. Three archaeological sites have been recorded within the study area. Additional survey of the 7.74 acres that have not previously been surveyed and consultation with the Gila River Indian Community will need to occur when an individual project is at the 30% design plan stage.

7.3.2 DRAINAGE ISSUES AND FLOODING

Drainage infrastructure is shown in **Figure 7-6.** It should be noted that flooding, ponding, and sheet flows are natural occurrences during every rain storm, and is a major problem for the walking community and especially those that do not have alternative transportation, such as the elderly, handicapped, and children. A brief overview of drainage conditions is provided as follows.

Baseline Road is a two-lane paved road with no paved shoulders, curb and gutter, or sidewalks on either side of the road. Graded ditches or swales are located on either side of the roadway along limited areas. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. There are no known cross drainage culvert crossings of Baseline Road. This roadway lies completely within the 100-year floodplains of the Gila and Salt Rivers.

83rd Avenue is a two-lane paved road with no paved shoulders, curb and gutter, or sidewalks on either side of the road. Graded ditches or swales are located on either side of the roadway along limited areas. The ditches have capacity for very minor storms. Flows above the capacity of the ditches may overtop the road or flood adjacent properties. Sediment has been observed on the pavement either from local drainage or windblown sources. There are no known cross drainage culvert crossings of 83rd Avenue. The northern three-quarters of the roadway lies completely within the 100-year floodplain of the Gila River.

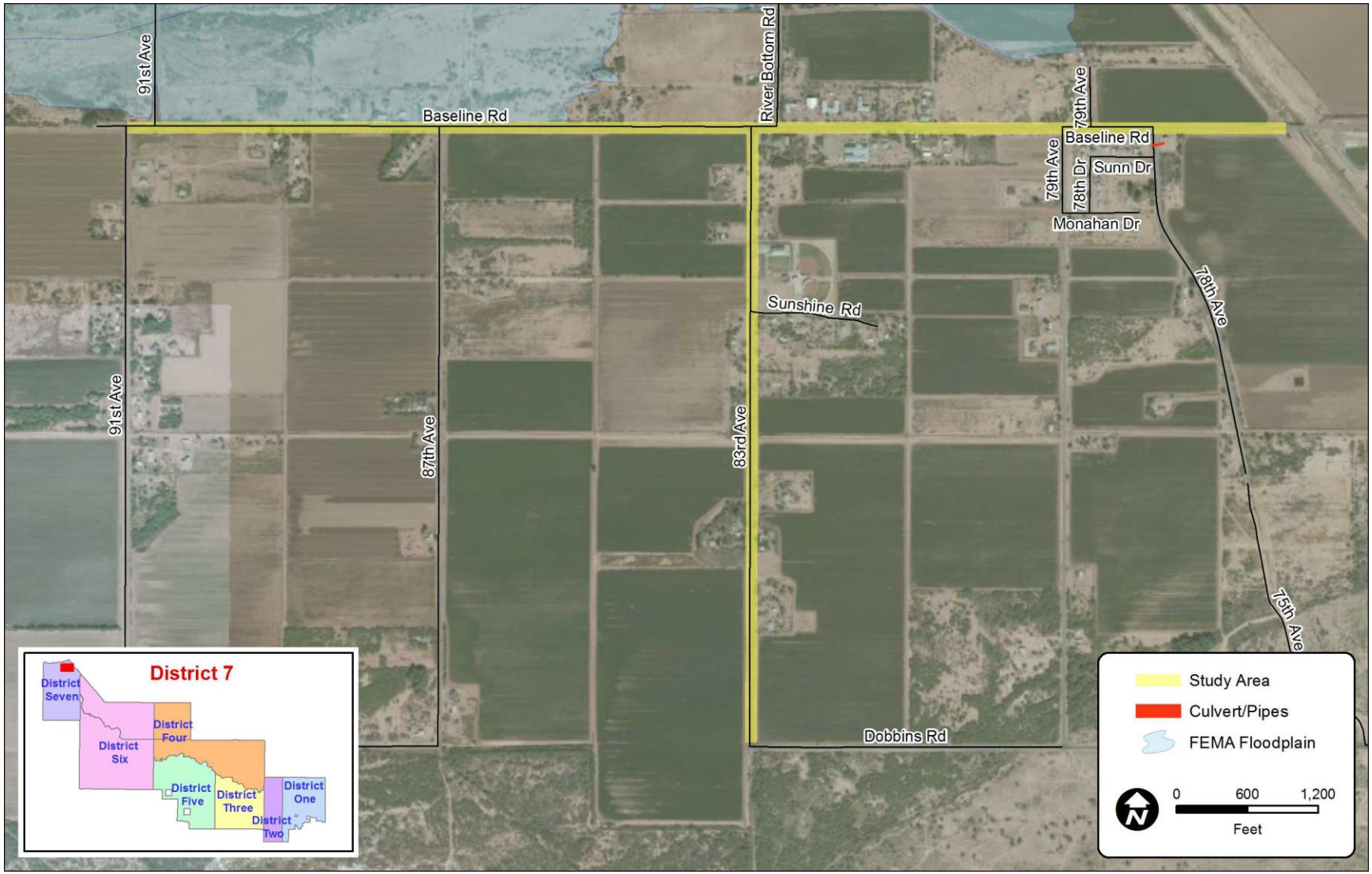


Figure 7-6: District 7 Drainage Infrastructure

7.4 SUMMARY OF PEDESTRIAN SAFETY NEEDS IN DISTRICT 7

Pedestrian needs are summarized graphically in **Figure 7-7** and listed below.

Baseline Road

- Provide sidewalks between 79th Avenue and 87th Avenue.
- Provide a bus shelter at the planned transit stop at the District 7 Service Center.
- Provide crosswalks and ADA ramps at the Baseline Road/83rd Avenue intersection.
- Provide speed control measures on Baseline Road, such as speed monitors. Another option is to encourage residents in this small Community help identify speeders, particularly repeat offenders.
- Provide street lighting on Baseline Road within the study area.
- Review warrants for all-way-stop control at the Baseline Road/ 83rd Avenue intersection.

83rd Avenue can be difficult to walk on, particularly during growing seasons when vegetation in the shoulder area can impede walking

83rd Avenue

- Add sidewalks between Baseline Road and the new Multipurpose Center on the east side of the street. A crosswalk is also needed at this location.
- Provide a bus shelter at the new Multipurpose Center.
- Provide multi-use paths or trails south of the new Multipurpose Center to Dobbins Road. Consider a future extension of a trail to the planned Fire Station.
- Provide street lighting on 83rd Avenue between Baseline Road and the residential area north of Dobbins Road.

Drainage

- Provide curb and gutter at new sidewalk locations to keep pavement drainage off sidewalks.
- Provide new or improved culvert locations at cross drainages and at existing locations to improve the drainage crossings so that pedestrians can walk more easily.

Other Needs

- Provide bus shelters and bus stop amenities at key stops along the planned circulator route.
- Provide a sidewalk on one side of 79th Avenue, between Baseline and Dobbins Road (this road is not a study area road, but comments were received on pedestrian needs on this road during public outreach and so this project has been added to respond to those comments).

7.5 RECOMMENDED IMPROVEMENTS TO MEET IDENTIFIED NEEDS

A plan of improvements has been developed to address pedestrian safety needs and is summarized in **Figure 7-8**. Following this table are project information sheets describing recommended improvement projects on each roadway. These improvement projects are summarized in **Table 7-6**. It should be noted that a summary of recommended drainage improvements is provided in **Appendix B**. This Appendix also includes maps of drainage improvements.

7.5.1 STUDENT PEDESTRIAN SAFETY

One emphasis of the study has been the investigation of pedestrian safety improvements to enhance safety for school children. This included investigating potential improvements for school bus stop locations. These were reviewed based on discussions with school transportation providers and the Tribal Youth Council. In general, school children in District 7 are typically picked up at or near their homes, and no common school bus stop locations were identified in the study area. There are bus stops planned to serve the Gila River Indian Community Transit System that can also potentially serve as bus stops for school children to board the school bus. In particular, the bus stop planned near Baseline Road and 79th Avenue is close to a residential area and may serve a dual purpose. Location of school bus pickups can vary from year to year. However, the recommended sidewalk, speed control, street lighting and other improvements will make it safer environment for school children, as well as the general public, to walk in the Community.

7.5.2 ACCESS MANAGEMENT TECHNIQUES FOR PEDESTRIAN SAFETY

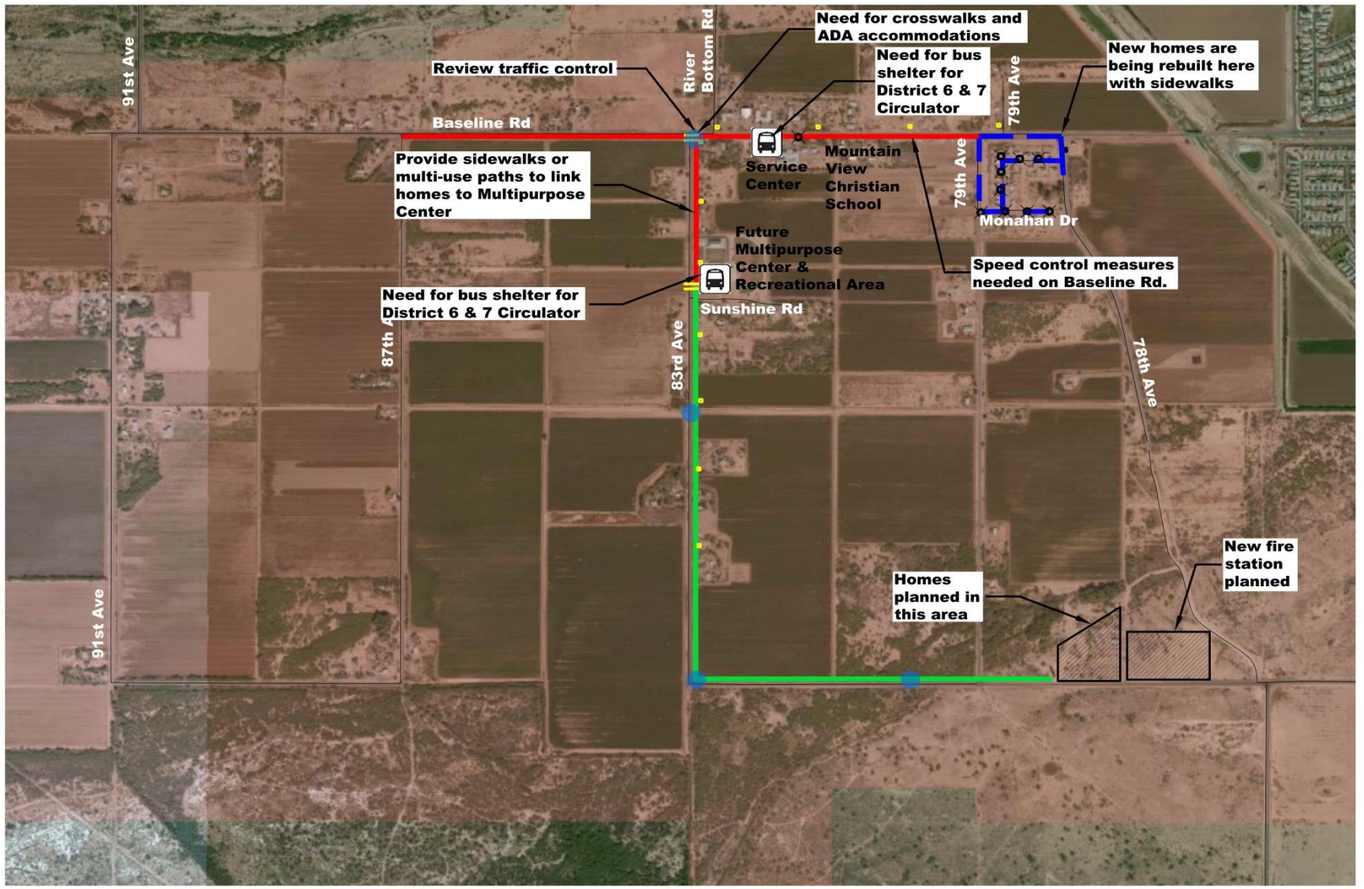
As further development occurs in the Community, access management techniques can be used to help improve pedestrian safety. Examples of access management techniques are:

- Reducing the number of driveways, within a given distance (per block or mile) through provisions of frontage roads and closing multiple driveways that serve one location.
- Providing greater separation between driveways.
- Providing a safe refuge for pedestrian crossings with raised medians.
- Providing right-turn lanes for high-volume driveways.
- Constructing a landscaped or other clearly marked buffer helps to visually define sidewalk and driveway locations.
- Providing a clear zone free of visual obstructions such as signs, large trees and bushes, or parked vehicles, which will allow pedestrians to be seen by drivers and to see oncoming vehicles.

Access management opportunities in the District 7 study area and how they were addressed in the plan are:

- Baseline Road - There are a number of connected driveways that serve approximately five homes that may have potential to reduce the number of driveways that access Baseline Road. Driveway consolidation could be considered if the road is reconstructed; however, it is not part of a recommended improvement.

- 83rd Avenue – There will be more pedestrian crossing activity and crosswalk needs when the District 7 Multipurpose Center opens (It opened in Fall 2014). Pedestrian improvements are recommended on 83rd Avenue to improve access, including sidewalks, crosswalks at the stop sign at Baseline Road, and methods to slow traffic through the area.



District 7 Study Area

LEGEND

Existing Infrastructure

- Sidewalk
- Crosswalk Locations
- Street Lighting
- Culverts and Pipes
- Existing Right of Way
- GRIC Allotments

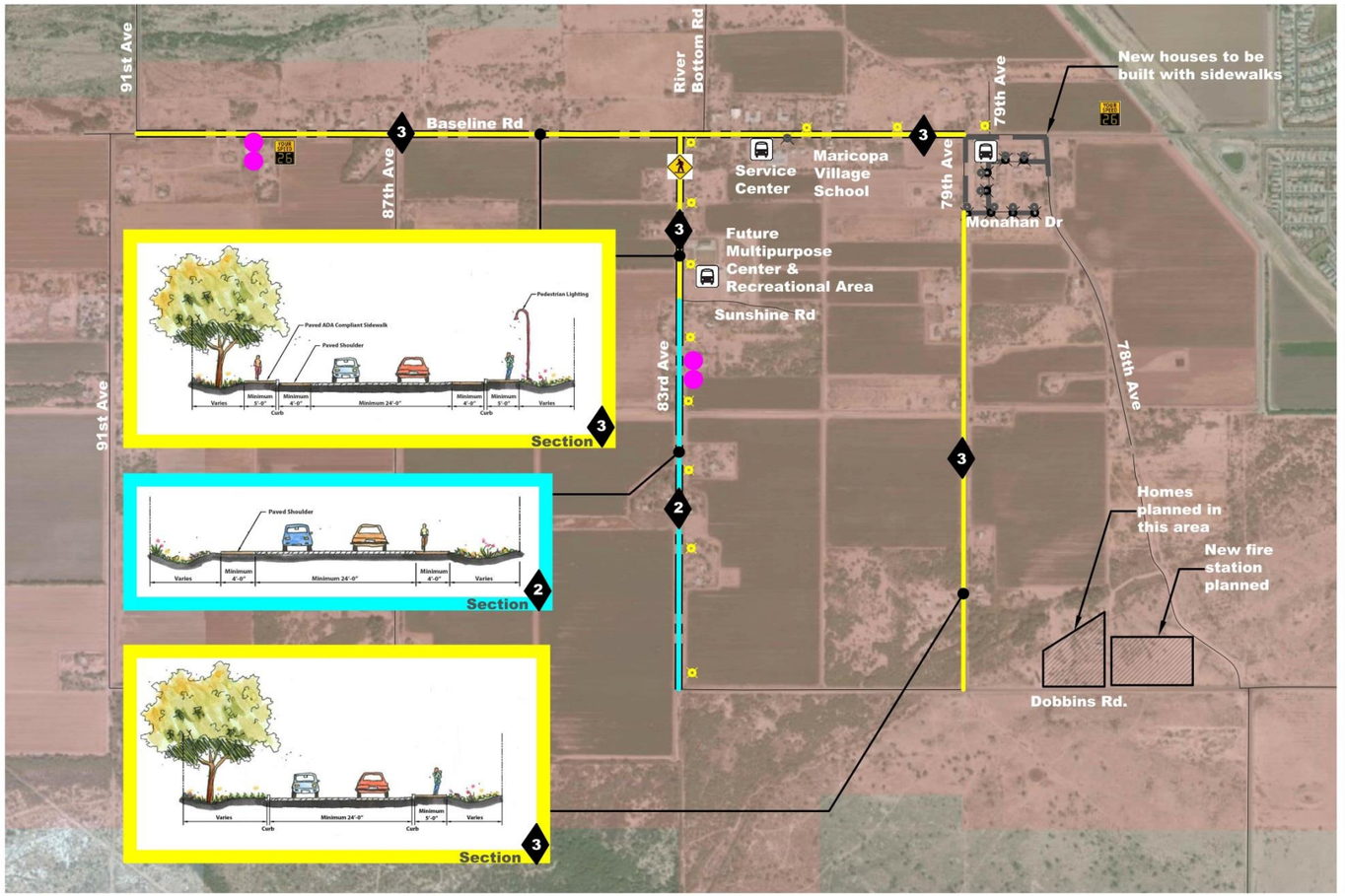
Recommended Pedestrian Needs

- Trail or Multi-use Path
- Sidewalk with Curb and Gutter
- Street Light
- Crosswalk
- New or Improved Culvert
- Bus Stop/Shelter

N
W E
S

Note: Symbols are schematic only (not to scale)

Figure 7-7: District 7 Pedestrian Needs



District 7 Study Area

LEGEND

Existing Infrastructure

- Sidewalk
- Street Lighting
- Existing Right of Way
- GRIC Allotments

Recommended Pedestrian Safety Improvements

- Install Street Light
- Install Speed Monitors
- Construct Bus Stop/Shelter
- Install Gateway Signage

N
W E
S

Note: Symbols are schematic only (not to scale)

Figure 7-8: District 7 Recommended Pedestrian Safety Improvements

Table 7-6: District 7 Recommended Pedestrian Safety Improvement Projects

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Baseline Road, 91st Avenue to 79th Avenue				
Construct sidewalk with curb and gutter on both sides of road.	91st Avenue to 79th Avenue	1.5	Asphalt – 1,370,000 Concrete –1,970,000	Costs include sidewalk paving option (asphalt or concrete), curb and gutter, miscellaneous signing, and new ditch. The segment from 83rd Avenue to 91st Avenue could be phased separately when further development occurs.
Construct street lighting	83rd Avenue to 79th Avenue	0.50	165,000	Assumes solar lighting at 200 foot spacing.
Install pads and shelters (two locations)		N/A	22,000	
Install radar speed monitors (two locations)	N/A	N/A	15,000	Encouraging more involvement from residents to report speeders is another recommended measure.
Install gateway signage (two locations)	N/A	N/A	3,000	
Police Department periodic speed enforcement	N/A	N/A	N/A	This would need to be coordinated through the Police Department
83rd Avenue, Baseline Road to Dobbins Road				
Construct sidewalk on both sides of road, and shoulder, curb and gutter.	Baseline Road to Sunshine Road	0.30	Asphalt – 375,000 Concrete – 625,000	Costs include sidewalk paving option (asphalt or concrete), curb and gutter and shoulder.
Construct 6-foot shoulders on both sides of road	Sunshine Road to Dobbins Road	0.70	150,000	Costs include construction of shoulder.

PROJECT NAME	ROAD SEGMENT	LENGTH (MI)	COST (2014 $)*	COMMENTS
Construct street lighting	Baseline Road to Dobbins Road	1.0	320,000	Assumes solar lighting at 200 foot spacing.
Construct bus pad and shelter (1 locations)		N/A	11,000	
Install gateway signage (1 location)		N/A	1,500	
79th Avenue, Baseline Rd to Dobbins Rd				
Construct sidewalk on one side of road, shoulders, and curb and gutter	Baseline Road to Dobbins	1.0	Asphalt – 900,000 Concrete – 1,300,000	

*Note: costs are based on 2014 estimated costs and include a 30% contingency to account for mobilization (8%), miscellaneous work (12%), construction surveying and layout (2%), erosion control (1%), contractor quality control (2%), furnish water supply (1%), and maintenance and protection of traffic (4%). See **Appendix B** for further information regarding recommended drainage improvements.

Project Information Sheet – Baseline Road (Rte 178)

Project Name	Baseline Road Pedestrian Safety Improvements		
Project Location	91st Avenue to 79th Avenue (1.5 miles)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☒
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Path: Construct sidewalk on both sides of street, with curbs. Provide ADA wheelchair ramps at Baseline Road/83rd Avenue intersection.		
	Drainage Improvements: Curb will assist in path drainage.		
	Street Lighting Install solar street lights between 83rd Avenue and 79th Avenue		
	School Bus and Transit Stops: Install pad and bus shelter at two locations.		
	Traffic Calming: Provide gateway signs to let drivers know they are entering a more residential area. Implement speed control devices such as portable radar signs. Provide speed enforcement periodically. Encourage involvement of residents to help identify speeders in the Community.		
Project Justification	Baseline Road is an arterial roadway which links residential areas to the District 7 Service Center and will provide a link to the District 7 Multipurpose Center on 83rd Avenue.		
Cost Estimate	See Table 7-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	The segment from 83rd Avenue to 91st Avenue could be phased separately when further development occurs. Community members requested sidewalks west to 91st Avenue.		

Baseline Road, looking west

Project Information Sheet – 83rd Avenue (Rte 2731)

Project Name	83rd Avenue Pedestrian Safety Improvements		
Project Location	83rd Avenue, Baseline Road to Dobbins Road (1.0 mile)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Path: Construct sidewalk on both sides of street, with curb, gutter, and sidewalk between Baseline Road and Sunshine Road. Between Sunshine Road and Dobbins Road, construct paved shoulders.		
	Drainage Improvements: Extend culvert at one location when paths are implemented.		
	Street Lighting Install solar street lighting.		
	School Bus and Transit Stops: Install pad and bus shelter at one location at or near the Multipurpose Center.		
	Traffic Calming: Provide gateway signs to let drivers know they are entering residential area. Implement speed control devices such as portable radar signs. Provide speed enforcement periodically.		
Project Justification	The new Multipurpose Center will attract more pedestrian trips to the area. In addition, the Tribal Transit service will also serve this area in the future.		
Cost Estimate	See Table 7-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		

83rd Avenue, looking north

Project Information Sheet – 79th Avenue

Project Name	79th Avenue Pedestrian Safety Improvements		
Project Location	79th Avenue, Baseline Road to Dobbins Road (1.0 mile)		
Roadway Ownership	Bureau of Indian Affairs ☒	Tribal ☐	Maricopa County ☐
Street Surface	Paved ☒	Gravel ☐	Dirt ☐
Project Description	**Project Components**		
	Sidewalk and Path: Construct sidewalk on one side of street between Baseline Road and Dobbins Road.		
	Drainage Improvements: These will need to be further investigated during design.		
Project Justification	This improvement was requested during a District 7 Community meeting held in 2014.		
Cost Estimate	See Table 7-6		
Potential Funding Sources	Tribal Transportation Program, Transportation Alternatives Program. More potential funding sources are provided in Table 10-1.		
Comments	There is a drainage ditch on the west side of the road.		

79th Avenue, looking south from Baseline Rd

7.6 IMPROVEMENT PROJECT PRIORITIZATION

The transportation improvement projects will address critical pedestrian and bicycle needs.
A matrix has been developed to assign the priorities for various improvement project elements into short, mid- or long range time frames. The prioritization is summarized in **Table 7-7**. However, as funding becomes available, or opportunities for implementation change, these projects can be re-prioritized.

Table 7-7: District 7 Pedestrian Safety Improvements Prioritization

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
Baseline Road, 91st Avenue to 79TH Avenue																		
Construct sidewalk with curb on both sides of road.	3	2	0	2	4	1	2	2	2	2	2	2	2	0	2	28	Mid	
Construct street lighting (83rd to 79th Ave.)	3	2	0	2	4	1	2	2	1	2	2	2	2	0	2	27	Mid	
Install bus pad and shelter (two locations)	3	2	0	2	4	3	2	2	1	2	2	2	2	5	2	34	Short	
Install radar speed monitors (two locations)	3	2	0	2	4	3	1	2	1	1	2	1	1	5	1	29	Mid	
Install gateway signage (two locations)	3	2	0	2	4	4	2	2	1	1	1	1	1	5	1	30	Short	
Coordinate with Police Dept. on speed enforce-ment	3	2	0	2	4	5	1	2	1	1	1	1	1	5	1	30	Short	

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
83rd Avenue, Baseline Road to Dobbins Road																		
Construct sidewalk on both sides of road, between Baseline Road and Sunshine Road	3	2	0	2	4	1	2	2	2	2	2	2	2	0	1	27	Mid	
Construct shoulders on both sides of road between Sunshine Road and Dobbins Road	3	2	0	2	4	1	2	2	2	2	2	2	2	0	1	27	Mid	
Construct street lighting	3	2	0	2	4	1	2	2	1	2	2	2	2	5	1	31	Short	
Construct bus pad and shelter (1 location)	3	2	0	2	4	3	2	2	1	2	1	2	2	5	1	32	Short	This could also serve as a school bus stop.
Install gateway signage (1 location)	3	2	0	2	4	4	1	2	1	1	2	1	1	5	1	31	Short	

STREET NAME / PROJECT	PRIORITIZATION CRITERIA																	
	SIDEWALK AVAILABILITY 1 = MAINTAINED SHOULDER 2= DAMAGED SHOULDER 3 = NO SIDEWALK OR SHOULDER 4=DISCONTINOUS SIDEWALK	CROSSING OPPORTUNITIES 0 =SPACING LESS THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS 2= SPACING MORE THAN 1,000 FEET BETWEEN STOP SIGNS OR SIGNALS	PEDESTRIAN CRASHES IN 5 – YEAR PERIOD 0 =0 CRASHES 2 = 1 CRASH 4= 2 CRASHES 6 = 3 CRASHES 8 = 4 CRASHES 10 = 5 CRASHES	TRAFFIC SPEEDS 1 = 25 MPH OR LESS 2 = 35 – 40 MPH 3 = > 40 MPH	TRAFFIC VOLUMES 1 = 0-199 VPD 2= 200-499 VPD 3=500-999 VPD 4=1,000-4,999VPD 5= 5,000 OR MORE VPD	COST 1 = >$100,000 2= $50-$100,000 3= $10,000-$50,000 4=$2,000-$10,000 5= $0-$2,000	DISTRICT MASTER PLAN ADDRESSES RECOMMENDATIONS FROM THE DISTRICT MASTER PLAN? 1=NO 2=YES	PEDESTRIAN ENVIRONMENT CREATES A MORE COMFORTABLE, SAFE ENVIRONMENT FOR PEDESTRIANS OR BICYCLISTS? 1=NO 2=YES	DRAINAGE IMPROVES DRAINAGE AND / OR REDUCES FLOODING FOR WALKERS 1=NO 2=YES	SAFETY SUPPORTS SAFETY IN WALKING TO SCHOOL, BIKING, OR TAKING THE SCHOOL BUS? 1=NO 2=YES	HEALTH IMPROVES HEALTH AND WELLNESS BY MAKING IT EASIER TO WALK OR BIKE 1=NO 2=YES	CONNECTIVITY CONNECTS ACTIVITY CENTERS 1=NO 2=YES	MULTIMODAL PROVIDES IMPROVED MULTIMODAL CONNECTIONS 1=NO 2=YES	COMPLEXITY COMPLEXITY OF DESIGN – FOR EXAMPLE, IS NEW ROW REQUIRED, OR ENVIRONMENTAL ISSUES TO BE ADDRESSED? 0=YES 5=NO	COORDINATES WITH A PLANNED IMPROVEMENT IN THE TRIBAL TIP OR LONG RANGE PLAN? 1=NO 2=YES	TOTAL POINTS	SUGGESTED PRIORITY	COMMENTS
79 Avenue, Baseline Road to Dobbins Road																		
Construct sidewalk and curb on one side of road	3	2	0	2	2	1	2	1	2	2	2	2	2	0	1	24	Long	

8 Regional Railroad Path

8.1 PATH DESCRIPTION AND OVERVIEW

An abandoned Union Pacific railroad line has been identified as a potential regional trail, encompassing areas in Districts 1, 2, and 4. The abandoned rail line location is shown in **Figure 8-1**. Although not specifically within any of the study area boundaries, this abandoned rail line has the potential to become a pedestrian resource for the entire Reservation area.

Rail paths are multi-purpose public paths created from former railroad corridors. Most often flat or following a gentle grade, they can be used for bicycling, walking, inline skating, equestrian and wheelchair use.

According to the Rails to Trails Conservancy, a rail path creates healthier places for healthier people. They serve as wildlife conservation and historical preservation corridors, stimulate local economies by increasing tourism and promoting local business, offer safe and accessible routes for work and school commuting, and promote active lifestyles for all ages.

The first step in developing a rail path is determining definitively that the rail corridor is abandoned. After abandonment the railroad company usually removes the tracks and ties for salvage and regrades the corridor with the original ballast left by the railroad. Many trails are later surfaced with asphalt, crushed stone, wood chips or another material appropriate for the intended trail uses. Ideally, bridges and tunnels are left intact so the trail agency need only add wood decking, appropriate railings and other safety features. Road crossings must be properly striped and signed for both trail and road users.

In most cases the jurisdiction that buys the corridor builds the trail as well. The agency develops it using its own labor and equipment or hires an independent construction company. In a few cases, groups of citizen volunteers have constructed a trail. Trails are generally managed by public agencies, but some are operated by other types of organizations, including nonprofit "friends of the trail" citizen groups, land trusts and foundations.

In the future, a rail trail could connect to other sidewalks and trails recommended in this study. For example:

District 1: The rail path could potentially be extended to Skousen Road, and then extend south on Skousen Road to Blackwater School Road. A sidewalk is recommended on Blackwater School Road between Quail Road and Lateral Road.

District 2: The rail path could potentially link to Oberg Road to the south and then connect to Sacaton Flats Road. A sidewalk is recommended on Sacaton Flats Road, between KaKaichu Path and Mish Ki Road.

District 4: The north end of the rail path could potentially link to Santan Road, via SR 87. Sidewalks are recommended on Santan Road, between Silver Road and Maize Road.

More resources on developing a rail path are provided on the Rails to Trails Conservancy website, http://www.railstotrails.org/index.html.

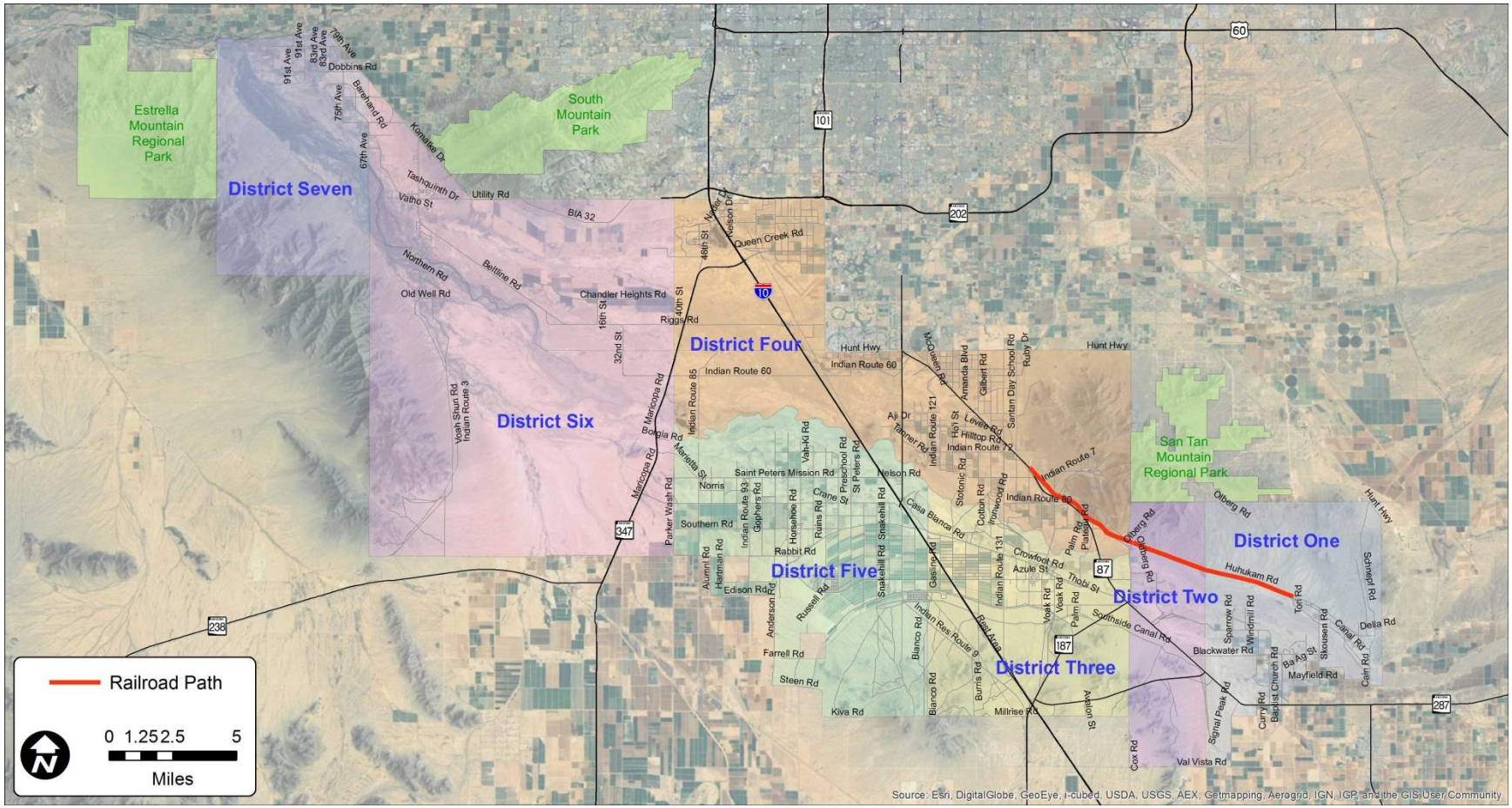


Figure 8-1: Potential Trail Location using Abandoned Rail Line

9 Combined Project Prioritization

This chapter provides a summary of the short, mid, and long range projects in all seven District study areas. In each of the three time frames, short, mid-or long range, the projects are sorted by District.

9.1 SHORT-RANGE PROJECTS

Short range projects are typically low cost improvements that can be implemented relatively quickly, may have the potential to be included as part of a programmed project, or may have a high priority for other reasons. As part of the prioritization process, these projects typically scored between 30 and 35 points. Short-range projects are summarized in **Table 9-1**. The total cost of short range projects is in the range of $1.96M to $2.52M, depending on the type of materials chosen for individual sidewalk or path construction and the level of additional improvements required, such as drainage, curbing, or other elements.

Table 9-1: Summary of Recommended Short-Range Pedestrian Safety Projects

DISTRICT	ROAD NAME AND LIMITS	PROJECT NAME	COST (THOUSAND $)	PRIORITIZATION SCORE
1	Blackwater School Rd, Lateral Road to Quail Road	Install gateway signage (Two locations).	3	30
1	Blackwater School Rd, Lateral Road to Quail Road	Coordinate with Police Department on speed enforcement.	N/A	30
1	Toki Road, Squawbush Road to Ke'li Akimel Ball Park	Construct sidewalk on east side of road.	170-215*	34
1	• Squawbush Road/ Toki Road • Toki Road/Blackwater School Road • Firestation Road/Blackwater School Road • Squawbush Rd/Quail Road	District 1 crosswalk striping project at stop sign locations.	4	34
2	Sacaton Flats Road/Mish Ki Road	Stripe crosswalk at stop sign.	1	34
2	Park Street, Mish Ki Road to east terminus of street	Construct sidewalk with curbs (sidewalk is being constructed on south side of street as part of paving project; construction on the north side is recommended as a mid-range project).	The sidewalks on the south side of the street have been incorporated into the Park Street paving project.	N/A
2	Vajikut Street/Mish Ki Road	Construct school bus pad and shelter.	11	30
3	Seed Farm Road, Bluebird Road to Casa Grande Highway	Stripe 5-foot shoulder area on Seed Farm Road on both sides of street.	2	32

DISTRICT	ROAD NAME AND LIMITS	PROJECT NAME	COST (THOUSAND $)	PRIORITIZATION SCORE
3	Seed Farm Road, Bluebird Road to Casa Grande Highway	Construct 4 bus pads and shelters.	44	31
3	Cholla Road, Seed Farm Road to Sacaton Road	Retrofit curbs to be accessible (5 locations).	21	35
3	Casa Blanca Road/Sacaton Road	Construct cross walk at west leg of intersection.	3	33
3	Casa Blanca Road, Bluebird Road to Sacaton Road	Construct 1 bus pads and shelter.	11	32
3	Casa Blanca Road, Bluebird Road to Sacaton Road	Install solar radar monitor (1 location).	8	31
3	Casa Blanca Road, Bluebird Road to Sacaton Road	Install gateway signage (1 location).	2	31
3	Sacaton Road, Casa Blanca Road to east of Thobi Street	Install radar speed monitors (1 location).	8	34
3	Sacaton Road, Casa Blanca Road to east of Thobi Street	Install gateway signage (1 location).	2	30
3	Cholla Road, Seed Farm Road to Sacaton Road	Construct sidewalk on east side of road.	145-300*	29
3	Skill Center Road, Azule Road to Bayberry Road	Construct sidewalk on Skill Center Road.	115-260*	32
3	Skill Center Road, Azule Road to Bayberry Road	Install solar radar monitor (2 locations) by school.	16	33
4	Santan Road, Maize Road to Silver Road	Construct street lighting.	260	32
4	Santan Road, Maize Road to Silver Road	Stripe crosswalk at stop sign controlled intersection at Stotonic Road.	1	35
4	Santan Road, Maize Road to Silver Road	Install gateway signing (2 locations).	3	30
4	Santan Road, Maize Road to Silver Road	Install radar speed monitors (2 locations).	15	31
4	Stotonic Road, Hilltop Drive to Howi Street	Install gateway signing (2 locations).	3	30
4	Stotonic Road, Hilltop Drive to Howi Street	Install radar speed monitors (1 location).	15	30

DISTRICT	ROAD NAME AND LIMITS	PROJECT NAME	COST (THOUSAND $)	PRIORITIZATION SCORE
5	◆ Preschool Road/Casa Blanca Road ◆ Eagle Court/Casa Blanca Road ◆ Falcon Court/Casa Blanca Road	District 5 crosswalk striping project at stop sign locations.	3	32
5	Casa Blanca Road	Construct radar speed monitor (2 locations).	15	32
5	Casa Blanca Road	Construct gateway signing (2 locations).	3	32
6	Pecos Road, 51st Avenue to Tashquinth Drive	Construct sidewalk on one side of road.	760-980*	26
6	Pecos Road, 51st Avenue to Tashquinth Drive	Stripe and provide advance signing for high visibility north-south crosswalk at Boys and Girls Club, when warranted.	3	33
6	Pecos Road, 51st Avenue to Tashquinth Drive	Construct one bus pad and two shelters.	18	33
6	51st Avenue, Gila Crossing Road to Tashquinth Drive	Construct bus pad and shelters (two locations).	33	34
6	St Johns Road/51st Avenue	Stripe crosswalks.	1	35
6	Tashquinth Drive, Pecos Road to 51st Avenue	Construct sidewalks on both sides of street.	220	30
7	Baseline Road, 91st Avenue to 83rd Avenue	Install pads and shelters (two locations).	22	34
7	Baseline Road, 91st Avenue to 83rd Avenue	Install gateway signage (two locations).	3	31
7	Baseline Road, 91st Avenue to 83rd Avenue	Coordinate with Police Department on speed enforcement.	N/A	N/A
7	83rd Avenue, Baseline Road to Dobbins Road	Construct bus pad and shelter (1 location).	11	32
7	83rd Avenue, Baseline Road to Dobbins Road	Install gateway signage (1 location).	2	31
		Total Cost	**$1,957-2,522***	

*Note: The range of costs depends on the path material chosen (e.g. asphalt path or concrete for sidewalks; stabilized decomposed granite, asphalt, or concrete for more paths outside of the road right-of-way). Many of the cost estimates for sidewalk improvements include drainage improvements, curb and gutter, and other improvements.

9.2 MID-RANGE PROJECTS

Mid-term improvements are more complex and may require more planning time, advance engineering, or additional time to develop funding. The time frame for these projects is generally 5 to 10 years. A summary of mid-range projects is provided in **Table 9-2**. The total cost of mid-range projects is in the range of $9.5M to $12.4M, depending on the type of materials chosen for individual sidewalk or path construction and the level of additional improvements required, such as drainage, curbing, or other elements.

As part of the prioritization process, these projects scored between 25 and 29 points.

Table 9-2: Summary of Recommended Mid-Range Pedestrian Safety Projects

DISTRICT	ROAD NAME AND LIMITS	PROJECT NAME	COST (THOUSAND $)	PRIORITIZATION SCORE
1	Blackwater School Rd, Lateral Road to Quail Road	Install radar speed monitors (2 locations).	15	29
1	Blackwater School Rd, Lateral Road to Quail Road	Construct sidewalk on one side of road.	445-605*	25
1	Toki Road, Squawbush Road to Ke'li Akimel Ball Park	Install street lighting.	130	27
1	Firestation Road, Squawbush Road to Blackwater School Road	Construct paved shoulder on both sides of road.	50	29
1	Firestation Road, Squawbush Road to Blackwater School Road	Install street lighting.	82	28
1	Squawbush Rd, Toki Road to Quail Road	Construct sidewalk on one side of road.	240-325*	25
1	Squawbush Rd, Toki Road to Quail Road	Install street lighting (Toki Road to Shegoi Road).	165	27
2	Mish Ki Road, Vajikut Street to Community Road	Construct paved shoulder.	270	25
2	Park Street	Construct sidewalk on north side of street.	250-315	25
2	Sacaton Flats Road, Ka Kaichu Path to Mish Ki Road	Construct sidewalk on one side of the street with curbs.	110-155*	27
2	Sacaton Flats Road, Mish Ki Road to Pancott Lane	Construct shoulders.	95-195	27
2	Sacaton Flats Road, Ka Kaichu Path to Pancott Lane	Install solar street lighting.	85	26

DISTRICT	ROAD NAME AND LIMITS	PROJECT NAME	COST (THOUSAND $)	PRIORITIZATION SCORE
2	New path, Vajikut Street to Park Street	Construct 10-foot path between Vajikut Road and Mish Ki Road.	15-65*	25
3	Casa Blanca Road, Bluebird Road to Sacaton Road	Construct sidewalk with curbs on north side of road.	545-755*	26
3	Governance Center Area	Landscaping sidewalk areas.	35	29
3	Pima Street/Main Street intersection	Intersection improvements to east leg of offset intersection and crosswalk striping.	Cost to be determined - needs further study.	25
3	Sacaton Road, Casa Blanca Road to east of Thobi Street	Construct sidewalk on south side of road.	685-1,000*	29
3	District 3-various locations	Install bus shelters (6 locations).	66	27
3	Skill Center Road	Install street lighting.	260	26
3	Sacaton Road, Casa Blanca Road to 0.3 miles north	Construct sidewalk on both sides of street.	250-355*	26
4	Santan Road, Maize Road to Silver Road	Construct curbed sidewalk on both sides of the road.	820-1,015*	27
4	Santan Road/Stotonic Road	Construct bus pad and shelter (1 location).	11	28
4	Stotonic Road, Hilltop Drive to Howi Street	Construct sidewalk with curbs on both sides of the road.	465-570*	26
5	Preschool Road, High School Access Road to unnamed residential street 0.13 miles north of Wren Street	Construct curbed sidewalk on one side of the road.	190-270*	26
5	Casa Blanca Road, locations to be determined	Construct street lighting.	50	28
6	Pecos Road, 51st Avenue to Tashquinth Drive	Construct street lighting.	235	27
6	51st Avenue, Gila Crossing Road to Tashquinth Drive	Construct sidewalk on one side of road.	590-825*	28
6	51st Avenue, Gila Crossing Road to Tashquinth Drive	Construct street lighting.	445	27

DISTRICT	ROAD NAME AND LIMITS	PROJECT NAME	COST (THOUSAND $)	PRIORITIZATION SCORE
6	St Johns Road	Construct street lighting.	410	26
6	St Johns Road	Construct sidewalk on one side of road.	97-381*	27
7	Baseline Road, 91st Avenue to 79th Avenue	Construct sidewalks on both sides of road.	1,370-1,970*	28
7	Baseline Road, 91st Avenue to 79th Avenue	Construct street lighting.	164	27
7	Baseline Road, 91st Avenue to 83rd Avenue	Install radar speed monitors (two locations).	15	30
7	83rd Avenue, Baseline Road to Sunshine Road	Construct sidewalks on both sides of road.	375-625	27
7	83rd Avenue, Multipurpose Center to Dobbins Road	Construct 6-foot shoulders on both sides of road.	150	27
7	83rd Avenue, Baseline Road to Dobbins Road	Construct street lighting.	320	26
		Total Cost	**$9,500-$12,384***	

*Note: The range of costs depends on the path material chosen (e.g. asphalt path or concrete for sidewalks; stabilized decomposed granite, asphalt, or concrete for more paths outside of the road right-of-way). Many of the cost estimates for sidewalk improvements include drainage improvements, curb and gutter and other improvements.

9.3 LONG-RANGE PROJECTS

Long-term projects are the most complex, may involve multiple property owners and obtaining easements or access, and frequently cost the most. These projects generally are in the 10 to 20 year time frame. A summary of long range projects is provided in **Table 9-3**. The total cost of long range projects is in the range of approximately $3.37M to $5.16M depending on the type of materials chosen for individual sidewalk or path construction and the level of additional improvements required, such as drainage, curbing, or other elements.

As part of the prioritization process, these projects scored between 20 and 24 points.

Table 9-3: Summary of Recommended Long-Range Pedestrian Safety Projects

DISTRICT	ROAD NAME AND LIMITS	PROJECT NAME	COST (THOUSAND $)	PRIORITIZATION SCORE
1	Blackwater School Road, Lateral Road to Quail Road	Construct street lighting.	295	24
1	Blackwater School Rd, Lateral Road to 1.44 miles west	Construct path extension.	630-800*	24
2	Mish Ki Road, Vajikut Street to Community Road	Install solar street lighting.	410	24
2	Pancott Lane alignment, between Sacaton Flats Road and Park Street	Construct path.	65-318*	21
2	East-west path, Mish Ki Road to Pancott Lane	Construct path.	50-240	21
2	Park Street, Mish Ki Road to east terminus of street	Install street lighting.	190	24
2	Vajikut Street, Mish Ki Road to east terminus of road	Construct shoulder.	85	23
2	Vajikut Street, Mish Ki Road to east terminus of road	Install solar street lighting.	140	22
3	Azule Road alignment	Construct path.	25-65*	22
4	Canal adjacent to Levee Road, Stotonic Road to Santan Road	Construct canal path on both sides of canal.	149-429*	22
4	Construct path north of Santan Road, to connect Santan Road and Stotonic Road	Construct path north of Santan Road, to connect east to Stotonic Road.	35-173*	23
5	Eagle Court, south end of cul-de-sac to Casa Blanca Road	Construct path.	40-60*	23
5	Falcon Court, south end of cul-de-sac to Casa Blanca Road	Construct sidewalk with curb on both sides of the road.	40-60*	23

DISTRICT	ROAD NAME AND LIMITS	PROJECT NAME	COST (THOUSAND $)	PRIORITIZATION SCORE
5	Falcon Court, Casa Blanca Road to Wren Street	Construct sidewalk with curb on one side of the road.	95-160*	23
5	Wren Street, Orchard Road to Preschool Road	Construct sidewalk on both sides of the road.	190-270*	24
6	Lewis Road alignment	Construct path between Pecos Road and Tashquinth Drive.	33-165	23
7	79th Avenue, Baseline Road to Dobbins Road	Construct sidewalk on one side of the road	900-1,300	24
Various	Trail using abandoned Union Pacific Rail track	To be determined – would need additional study	To be determined – would need additional study	N/A
		Total Cost	**$3,372-$5,160**	

*Note: The range of costs depends on the path material chosen (e.g. asphalt path or concrete for sidewalks; stabilized decomposed granite, asphalt, or concrete for more paths outside of the road right-of-way). Many of the cost estimates for sidewalk improvements include drainage improvements, curb and gutter, and other improvements.

10 Funding Sources for Pedestrian and Bicycle Projects

This chapter describes funding resources that are potentially available for the projects identified in the previous chapters. Financing a transportation program requires utilization of a variety of funding sources and strategies. It may even involve collaborating with other entities or agencies.

The purpose of this chapter is to provide a brief description of some of the major available funding sources and financing options and to identify principal contacts for additional information regarding the funding sources and requirements.

Table 10-1 provides the following information for each funding source:

- Administering agency
- Program name
- Use of funds
- Funding level
- Program details
- Application deadline
- Contact

10.1 TRIBAL TRANSPORTATION PROGRAM

The Tribal Transportation Program is discussed in further detail here because it is mentioned as a funding source for many recommended projects; however, participating in the program requires understanding of the program process and coordination requirements with the Gila River Indian Community Department of Transportation.

10.1.1 TRIBAL TRANSPORTATION PROGRAM OVERVIEW

In July, 2012, P.L. 112-141, the Moving Ahead for Progress in the 21st Century Act (MAP-21) became law. MAP-21 is a funding and authorization bill which governs federal surface transportation spending. One of the programs funded under this bill is the Tribal Transportation Program (TTP), which supports transportation and public road access to and within Indian reservations, Indian lands, and Alaska Native Village communities nationwide. The TTP provides approximately $2 million annually to the Gila River Indian Community for transportation projects to and within the Community. Tribal governments must have a project listed in their Tribal Transportation Improvement Program in order to expend TTP funds on it.

10.1.2 GILA RIVER INDIAN COMMUNITY DEPARTMENT OF TRANSPORTATION COORDINATION WITH THE TRIBAL TRANSPORTATION PROGRAM

The Gila River Indian Community Department of Transportation programs the Community's allocation of the TTP funds into a Five-Year Council approved Tribal Transportation Improvement Program. As mentioned in the previous section, Tribal governments must have a project listed in their Tribal Transportation Improvement Program in order to expend TTP funds on it. Therefore a District or implementing entity needs to coordinate with the Gila River Indian Community Department of Transportation if they want to pursue a project utilizing TTP funds. Appropriate protocol established by the Gila River Indian Community Department of Transportation and TTP requirements must be followed. The implementing entity must follow the Community's transportation planning and programming processes to compete for a spot on the Tribal Transportation Improvement Program. Currently projects are programmed through fiscal year 2019, and projects on study area roads that are currently on the Tribal Transportation Improvement Program are summarized in Chapter 11.

Table 10-1: Potential Funding Sources

ADMINISTERING AGENCY	PROGRAM NAME	USE OF FUNDS	FUNDING LEVEL	PROGRAM DETAILS	APPLICATION DEADLINE	CONTACT
Arizona Department of Transportation and Maricopa Association of Governments	Highway Safety Improvement Program (HSIP)	Elimination of safety hazards on any public road, public surface transportation facility; any publicly owned bicycle or pedestrian pathway or trail; or any traffic calming measure.	To be determined	Project is scoped and request for funding submitted to MAG. HSIP Local Government Coordinator provides assistance to local agencies throughout the process of identifying and developing the projects.	March 1st	ADOT Traffic Safety Section website: http://www.azdot.gov/business/engineering-and-construction/traffic/traffic-safety
Arizona Department of Transportation and Maricopa Association of Governments	Transportation Alternatives Program – Transportation Enhancements and Recreational Trails	Under MAP-21 provisions, the Safe Routes to School (SRTS), Transportation Enhancement (TE) and Recreational Trails is funded under this program.	To be determined	Eligible activities include: • Bicycle and pedestrian facilities • Safe routes for non-drivers projects and systems. • Construction of turn-outs, overlooks and viewing areas. • Vegetation management practices in rights of ways and other activities (similar to landscaping and beautification). • Historic preservation, rehabilitation and operation of historic transportation buildings, structures and facilities. • Preservation of abandoned railway corridors including pedestrians and bicycle trails. • Inventory, control and removal of outdoor advertising. • Archeological activities related to transportation projects. • Any environmental mitigation, including existing uses. • Planning, designing, or constructing boulevards, and other roadways largely in the right-of-way of former Interstate System roads or other divided highways.		Maureen De Cindis, Transportation Planner III Maricopa Association of Governments 302 North 1st Avenue, Suite 300 Phoenix, AZ 85003 Phone: (602) 254-6300 Email: mdecindus@azmag.gov

ADMINISTERING AGENCY	PROGRAM NAME	USE OF FUNDS	FUNDING LEVEL	PROGRAM DETAILS	APPLICATION DEADLINE	CONTACT
Arizona Department of Transportation Traffic Safety Section	Road Safety Assessment Program	The RSA program will conduct Road Safety assessments on state, local and tribal road facilities. An RSA is defined as a formal examination of user safety of a future or existing roadway by an independent multidisciplinary audit team, which includes qualified experienced members.	Technical assistance, no actual award of funds	Submit application	Ongoing	Richard Weeks, P.E. Road Safety Assessment Program Manager 1615 West Jackson St., Mail Drop 065R Phoenix, AZ 85007-3217 Phone: (602) 712-4382 Fax: 602-712-3243 Email: rweeks@azdot.gov
Federal Highway Administration	Tribal Transportation Program	The Tribal Transportation Program provides $2 million annually to the Gila River Indian Community for projects that improve access to and within Tribal lands. A statutory formula for distributing funds among tribes, based on tribal population, road mileage, and other factors.	The Gila River Indian Community receives approximately $2 million per year.	Funds are allocated to the Gila River Indian Community Department of Transportation via Gila River Indian Community through a program agreement.	TTP funds come automatically to the Gila River Indian Community	Manuel Enrique Sánchez Tribal Transportation Program Coordinator FHWA Office of Federal Lands Highway United States Department of Transportation Phone: (720) 963-3646 Email: manuel.sanchez@dot.gov
Federal Highway Administration	Tribal Transportation Program Safety Funds	Funds to be provided based on identification and analysis of highway safety issues and opportunities on tribal lands.	Approx. $9 million/year nationally for all projects including planning, Emergency Management Services, Police Department and construction.	Projects evaluated by category ♠ Safety Planning (40%) ♠ Engineering Improvements (30%) ♠ Enforcement and Emergency Services (20%) ♠ Education Programs (10%) For more information, refer to: http://flh.fhwa.dot.gov/programs/ttp/safety/ and Federal Register Volume 79, Numer93, page 27676, http://flh.fhwa.dot.gov/programs/ttp/documents/TTPSF-NOFA-2014.pdf	Varies as funds are available.	Manuel Enrique Sánchez Tribal Transportation Program Coordinator FHWA Office of Federal Lands Highway United States Department of Transportation Phone: (720) 963-3646 Email: manuel.sanchez@dot.gov

ADMINISTERING AGENCY	PROGRAM NAME	USE OF FUNDS	FUNDING LEVEL	PROGRAM DETAILS	APPLICATION DEADLINE	CONTACT
Gila River Indian Community	Tribal Funds for Capital Improvement Projects	Capital improvement projects.	Varies	Capital improvement funds are allocated to each District.	N/A	Gila River Indian Community Administrative Office
Gila River Indian Community	Tribal Funds for Economic Development	Economic development projects.	Varies	Each District applies for funds for projects.	N/A	Gila River Indian Community Administrative Office
Indian Health Service	Injury Prevention Program	Develop, implement, and evaluate proven or promising injury prevention intervention programs. Projects include, but are not limited to, programs designed to reduce alcohol-related injuries, e.g. supporting initiatives to reduce drinking and driving. Other projects include seat belt promotion campaigns, pedestrian safety, and child passenger safety.	$75,000 maximum per project	Work with Indian Health Service Office to obtain project funding.	N/A	http://www.ihs.gov/InjuryPrevention/
Maricopa Association of Governments	Transportation Alternatives Program – Safe Routes to School	Under MAP-21 provisions, the Safe Routes to School (SRTS), Transportation Enhancement (TE) and Recreational Trails will be funded under this program.	To be determined	The Program provides funds to the States (and under MAP-21 to Regional Planning Organizations) to substantially improve the ability of primary and middle school students to walk and bicycle to school safely. The purposes of the program are: 1. to enable and encourage children, including those with disabilities, to walk and bicycle to school 2. To make bicycling and walking to school a safer and more appealing transportation alternative; and 3. To facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel	September of each year	Sarath Joshua, ITS and Safety Program Manager Maricopa Association of Governments 302 North 1st Avenue, Suite 300 Phoenix, AZ 85003 Phone: (602) 254-6300 Email: SJoshua@azmag.gov

ADMINISTERING AGENCY	PROGRAM NAME	USE OF FUNDS	FUNDING LEVEL	PROGRAM DETAILS	APPLICATION DEADLINE	CONTACT
				consumption, and air pollution in the vicinity (approximately 2 miles) of primary and middle schools (Grades K-8).		
Maricopa Association of Governments	Maricopa Association of Governments Congestion Mitigation and Air Quality (CMAQ) funds		varies	This is a flexible funding source for transportation projects and programs to help meet the requirements of the Clean Air Act. Projects reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter.	Each type of project has a unique application and a competitive selection process that begins in August, and is due in September.	Maricopa Association of Governments Eric Anderson, Transportation Director Teri Kennedy, Transportation Improvement Program Manager Stephen Tate, Transportation Planner III 302 N. 1st Avenue, Suite 300, Phoenix, AZ 85003 Phone: (602) 254-6300 e-mail: eanderson@azmag.gov, tkennedy@azmag.gov, or state@azmag.gov
National Highway Traffic Safety Administration and Governor's Office of Highway Safety	State & Community Highway Safety Grant Program	Alcohol counter measures, occupant protection, Police traffic services (primarily enforcement), Emergency medical services, Traffic records, Motorcycle safety, Pedestrian and bicycle safety, Roadway safety, speed control, school bus safety, training, and accident reconstruction.	Approx. $2.5 million/year for Arizona	Competitive proposals submitted to the GOHS	Competitive proposals submitted to the Governor's Office of Highway Safety during April and May	http://www.azgohs.gov/ Director Alberto Gutier Governor's Office of Highway Safety 3030 North Central Ave. #1550 Phoenix, Arizona 85012 Phone: (602) 255-3216 Email: agutier@azgohs.gov

ADMINISTERING AGENCY	PROGRAM NAME	USE OF FUNDS	FUNDING LEVEL	PROGRAM DETAILS	APPLICATION DEADLINE	CONTACT
Southwest Conservation Corps	Southwest Conservation Corps	Although not a funding source, this non-profit organization engages and trains youth and completes conservation projects for the public benefit	N/A	Contact Southwest Conservation Corps to partner on a project	N/A	Ancestral Lands Acoma, NM (505) 552-4074 Four Corners 701 Camino del Rio Suite 101 Durango, CO 81301 Phone: (970) 259-8607
United States Department of Housing and Urban Development	Indian Community Development Block Grant Program	Infrastructure construction, e.g., roads, water and sewer facilities; and, single or multipurpose Community buildings. Also for housing and economic development projects.	Nationally, single purpose grants were $60M	Single-purpose grants are competitively awarded- must primarily benefit low or moderate income persons	Mid-June annually	Southwest Office of Native American Programs Phoenix Office One North Central Avenue, Suite 600 Phoenix, AZ, 85004-2361 Phone: (602) 379-7200
United States Office of Energy Efficiency and Renewable Energy	Energy Efficiency and Conservation Block Grant Program	Goal is to promote, implement and manage energy efficiency and conservation projects, including street lighting.	Nationally, $454 M	Grants awarded competitively	N/A	Liza Henderson Phone: (602) 771-1134 e-mail: Lhenderson@az.gov
United States Department of Agriculture	Rural Business Enterprise Grants	The RBEG program is a broad based program that reaches to the core of rural development in a number of ways. Examples of eligible fund use relevant to this project include: Acquisition or development of land, easements, or rights of way;	There is no maximum level of grant funding. However, smaller	Submit application		http://www.rurdev.usda.gov/BCP_rbeg.html United States Department of Agriculture Phoenix Area Office

ADMINISTERING AGENCY	PROGRAM NAME	USE OF FUNDS	FUNDING LEVEL	PROGRAM DETAILS	APPLICATION DEADLINE	CONTACT
		construction, equipment, access streets and roads, parking areas, utilities; rural transportation improvement; and project planning. Any project funded under the RBEG program should benefit small and emerging private businesses in rural areas.	projects are given higher priority. Generally grants range $10,000 up to $500,000.			230 N. First Avenue, Suite 206 Phoenix, AZ 85003 Phone: (602) 285-6370
United States Department of Agriculture	Community Facility Grants	Grant funds may be used to assist in the development of essential community facilities. Grant funds can be used to construct, enlarge, or improve community facilities for health care, public safety, and community and public services. The amount of grant assistance for project costs depends upon the median household income and the population in the community where the project is located and the availability of grant funds.	Varies	Submit application		http://www.rurdev.usda.gov/HAD-CF_Grants.html United States Department of Agriculture Phoenix Area Office 230 N. First Avenue, Suite 206 Phoenix, AZ 85003 Phone: (602) 285-6370

11 Currently Programmed Projects on Study Area Roads

The previous chapter described how Tribal governments must have a project listed in their Tribal Transportation Improvement Program in order to expend Tribal Transportation Programs funds on it. Projects currently programmed on the Tribal Transportation Improvement Program on study area roads are summarized in **Table 11-1.**

Table 11-1: Projects Programmed on the Tribal Transportation Improvement Program on Study Area Roads

DISTRICT	PROJECT NAME	PROJECT DESCRIPTION	PROJECT LOCATION	YEAR PROGRAMMED IN TRIBAL TRANSPORTATION IMPROVEMENT PROGRAM					
				2014	2015	2016	2017	2018	2019
1	Toki Road	Mill and repave	N/A						X
2	Park Street	Pave and construct curb, gutter and sidewalk (south side of street)	Entire length (0.6 miles)	X					
3	Casa Blanca Road and Sacaton Road	Rubber Chip Seal and guardrail repair	Casa Blanca Road from I-10 to Sacaton Road SR 87 (9 miles)		X				
3 and 4	Sacaton Road	Construct and pave 8- foot shoulders	Casa Blanca Road to SR 87 (3.3 miles)				X	X	X
3	Cholla Road	Sidewalk, curb and gutter, chip seal	N/A			X			
4	Sesame Road (Santan Road)	Rubber Chip Seal	N/A					X	
5	Orchard Road	Reconstruct dirt road to 24 foot width. Double chip seal	Casa Blanca Road to Wetcamp Road (2 miles)				X		
6	Pecos Road	Box culvert, curb and gutter, sidewalk, rubber chip seal	51st Avenue to Tashquinth Drive (0.8 miles)			X			

Source: Gila River Indian Community Department of Transportation

12 Recommendations for Updates to Functional Classification and the Tribal Transportation Inventory

Functional classification is used to group roadway facilities based on mobility and access. Roadways are classified based on three major groupings; arterial, collector, and local. Arterial roadways are characterized by high mobility and low access, while local roads have high access and low mobility. To utilize federal funding on roadway improvements, the road must have a federal functional classification.

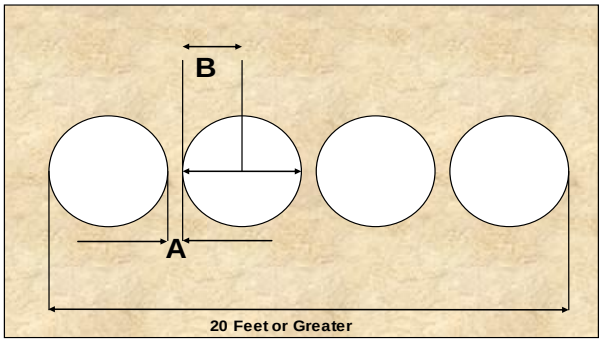
Discussion with the Gila River Indian Community Department of Transportation staff indicated that study area roads suggested for future functional classification updates will be considered in the next Gila River Indian Community Transportation Plan Update, which will be developed in the next year. Federal functional classifications suggested for consideration in that transportation plan update are:

- Blackwater School Road: minor collector
- Santan Road: minor collector

12.1 UPDATES TO THE TRIBAL TRANSPORTATION INVENTORY

The Tribal Transportation Inventory is a database of information relating to the tribal road system. This system records attributes of the tribal road system in a number of areas. The Gila River Indian Community Department of Transportation staff updates the Tribal Transportation Inventory on a yearly basis, typically in February, for submittal to the Bureau of Indian Affairs in March. Discussion with staff indicates that when road improvements are constructed, they will be updated as needed in the Tribal Transportation Inventory. One update that will be required is coding drainage improvements, which comprise multiple pipes as a bridge per Bureau of Indian Affairs guidelines. The Bureau of Indian Affairs definition of a bridge is found in 23 CFR 661.5 (Title 23, Highways), which is referenced in 25 CFR part 170.504:

"IRR Bridge – means a structure located on an IRR, including supports, erected over a depression or obstruction, such as water, highway, or a railway, and having a track or passageway for carrying traffic or other moving loads. Also having an opening measured along the center of the roadway/passageway of more than 20 feet beneath undercopings of abutments, or spring lines of arches or extreme ends of multiple boxes. It may also include multiple pipes where the clear distance between openings is less than half of the smaller contiguous openings." The BIA uses this image when describing a bridge:



Appendix B of the report describes drainage recommendations, and **Tables B-1** and **B-3** note recommended drainage improvements that are likely to qualify as BIA bridges. It should be noted that these recommendations are planning level recommendations, and once the projects go into design, the recommendations may change based on further analysis.

13 Public Involvement

Project outreach has been an important element of the project. It has been conducted in a number of different ways: through individual meetings and phone calls with police and fire department staff, District Service Center representatives, school district transportation staff, and others. Because of their knowledge of transportation needs and the road system, these stakeholders provided a unique perspective on transportation needs.

Other ways that input on pedestrian safety needs has been obtained included presentations at District Community meetings, a booth at the Gila River Indian Community Mul-Chu-Tha Fair, outreach at Youth Council and Elder Council meetings, and discussions with Gila River Indian Community Department staff.

Two rounds of open houses were conducted for the study, and are described as follows. Public Involvement Summary Reports for these outreach efforts are provided in **Appendix A**.

Public Mobile Open House 1

The Gila River Department of Land Use Planning and Zoning (LUPZ) and ADOT staff held a mobile open house at five locations throughout the Community on Friday, March 28, 2014 from 8 a.m.-5:30 p.m. Locations included the Governance Center, Gila River Health Care, Sacaton Super Mart, Komatke Chevron, and the Boys & Girls Club-Gila River Komatke location. The mobile open house allowed for Community members to learn more about the study, ask questions and provide input on needed improvements throughout the Community. In total, thirty members of the Community signed-in at the various locations.

Public Open House 2

The Gila River Department of Land Use Planning and Zoning (LUPZ) and ADOT staff held an open house at two locations in the Community, one on the east and one on the west end on Tuesday, August 5, 2014. Locations included the Governance Center (from 4-5 p.m.) and the Boys & Girls Club-Gila River Komatke location (from 6-8 p.m.). The open house allowed for Community members to learn more and provide feedback on the recommended pedestrian safety and transportation improvements that are a result of input from the first round of public involvement. In total, six members of the Community signed-in at the two locations but a larger number were present and chose not to sign in.

TECHNICAL ADVISORY COMMITTEE AND PROJECT MANAGEMENT TEAM COORDINATION

A core Project Management Team (PMT) provided project direction and input to the study. The PMT included representatives of the Gila River Indian Community Department of Land Use Planning and Zoning, the Gila River Indian Community Department of Transportation, the Arizona Department of Transportation (ADOT) Multimodal Planning Division, ADOT Communications Office, and Kimley-Horn staff. Meetings were held monthly.

In addition to the PMT, a broader-based Technical Advisory Committee (TAC) provided input on technical issues related to the study and reviewed study deliverables. TAC membership is shown in the text box at right.

TAC Members

Gila River Indian Community

- Department of Land Use Planning and Zoning
- Department of Transportation
- Department of Public Works
- Community Services Department
- Pima–Maricopa Irrigation Project

Bureau of Indian Affairs

- Western Regional Office
- Pima Agency

Federal Highway Administration

Maricopa Association of Governments

Maricopa County Department of Transportation

Arizona Department of Transportation

- Multimodal Planning Division
- Phoenix Construction District
- Phoenix Maintenance District
- Tucson District
- Communications

Appendix A – Public Involvement Summary Reports

Gila River Indian Community (GRIC) Multimodal Pedestrian Safety Study

April 2014

Prepared by
Arizona Department of Transportation

Introduction

The purpose of this project is to evaluate pedestrian safety needs on the Gila River Indian Community (GRIC) and to identify a recommended program of multimodal corridor enhancements to address the identified needs. Planning-level cost estimates for each proposed enhancement will be developed as well as identifying potential funding sources. A final report will be developed to guide future growth and development of improved pedestrian facilities for short, mid, and long-term planning year horizons.

Mobile Open House

To inform and involve Community members of the study, Gila River Land Use Planning & Zoning Staff (LUPZ) and ADOT held a mobile open house at five locations throughout the GRIC on Friday, March 28, 2014 from 8 a.m.-5:30 p.m. Locations included the Governance Center, Gila River Health Care, Sacaton Super Mart, Komatke Chevron, and the Boys & Girls Club-Gila River Komatke. Staff present at the meeting included Mary Rodin (Kimley-Horn), Misty Klann and Coralie Cole (ADOT) and Seaver Fields, Barney Bigman and Sasha Pachito (Gila River Indian Community LUPZ and Department of Transportation). The mobile open house allowed for Community members to learn more about the study, ask questions and provide input on needed improvements throughout the community. In total, 30 members of the Community signed-in at the various locations.

Newspaper Advertisement

A newspaper advertisement providing the date and locations of the open houses was published in the Gila River Indian News during the weeks of March 11 and 18, 2014. A copy of the advertisement can be found in Appendix A.

Presentation and Meeting Materials

Study boards and table top maps of the study area were displayed at each stop allowing for the opportunity for questions and answers as well as input on need improvements. Comments from open house participants were captured on maps of the districts and are summarized below. A safety needs survey was also available to each attendee at the meetings. All meeting materials can be accessed on the study webpage at azdot.gov/gricmpss. A copy of the survey can be found in Appendix B.

The following comments/suggestions were received at the various stops (exact locations can be seen on maps in Appendix C-comments from children at the Boys and Girls Clubs are included in this summary):

District Two

- Enforce handicap parking.
- Sidewalk needed near the Service Center along Mish Ki Road.
- People use the canal path near the Service Center.
- Mawid Subdivision-teens need recreation areas, speed bumps have helped.

District Three

- Trail or sidewalks needed along Barberry Street and Ocotillo Road.
- Sidewalks needed along Main and Pima streets, this area may have lighting but it isn't very bright.
- Sidewalks needed along Sacaton Road east of Casa Grande Road.
- Need better crosswalks at Seed Farm and Ocotillo roads along with sidewalks, crosswalks and trails to vendors.
- Casa Blanca/587 needs a light, north and south.
- A walking loop around Skill Center Road.
- Possible sidewalks around Skill Center Road.
- Sidewalks needed along Cholla Road, with a crosswalk at Cholla and Seed Farm.
- Love to see solar lights in District Three.
- A connection to the store and medical center is needed.
- Need a designated bus.
- Speeding occurs along Casa Blanca Road around 7:55 a.m.
- Paving needed near the recreation facilities.

District Four

- Several locations are dark including near Sun Lakes/Snaketown, zip code 85248, near Santan and Maize roads and Stockton Road and Red Ant Drive.
- Lighting is needed near Head Start.
- There are individuals who walk to the park near Santan Road and Silver Street.

District Five

- Stop lights are needed along Casa Blanca Road near Orchard Road to slow down speeding drivers.
- Need crosswalks near Ira Hayes High School along Preschool Road.
- Cut-through traffic near the high school.
- Sidewalks needed along Casa Blanca Road, traffic needs to slow down.
- Middee Street/Sweetwater Circle needs paving.

District Six

- Lighting is an issue along St. John's Road as well as differing speed limits in opposite directions.
- Sidewalks are needed along Pecos Road east of 51st Avenue.
- More enhanced crosswalks are needed at 51st Avenue and Tashquinth Drive, perhaps flashing ones and maybe speed monitors.
- Off-roading along Pecos Road.
- Road naming issues.
- Street lighting and pavement improvements needed along 51st Avenue/Beltline Road.
- Issues with kids and brushfires near Bith Ha Ah Street.

- Sidewalks needed along 51st Avenue, Beltline Road, Pecos Road and St. John's Road.

District Seven

- Streetlights and sidewalks needed along Baseline Road.
- Baseline Road is very dark when kids are waiting for the bus; two have been abducted near Baseline, Maricopa County Road and 83rd Avenue.

Safety Needs Survey Summary

The following comments were received and returned via the safety needs survey that was available at the open house stops. All comments received are included in this summary.

District Three Potential Improvements Identified:

- Marked shoulders for bike lanes
- Improved street crossings.
    - Need street signs
- Lighting
    - Around housing
- Street trees/more vegetation
    - More trees to make community nicer, plants etc.
- Benches
    - While waiting for a bus or just around if taking a walk
- Bus pullouts
    - Emergency pull button just in case an incident occurs while at a bus stop
- Other
    - Solar panels to consume energy
    - More play areas for kids
    - Rebuild pool with slide
    - More activities for community

District Six Potential Improvements Identified:

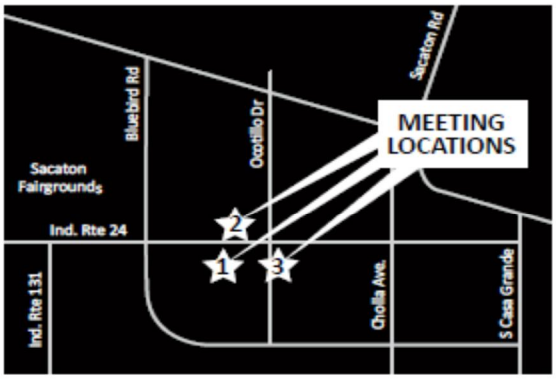
- Sidewalks
    - On Pecos Road by Boys & Girls Club
    - 51st Avenue and Saint John's Road
- Trails and pathways
    - From Gila Crossing School to Boys & Girls Club
    - 51st Avenue to Komatke Market
- Marked shoulders for bike lanes
    - Down 51st Avenue
- Improved street crossings
    - At St. John's Road and 51st Avenue

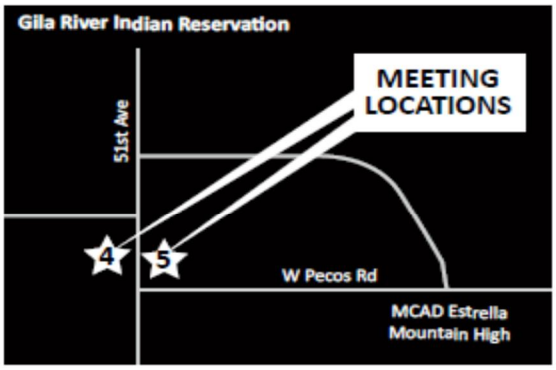
    - In front of Boys & Girls Club
- Lighting
    - Down Pecos Road, St. John's Road, 51st Avenue and Cocatka Street
- Street trees/more vegetation
    - Clean up existing vegetation on 51st Avenue and Pecos Road, also St. John's Road
- Benches
    - At city bus stops
- Bus pullouts
    - On 51st Avenue
- Other
    - Jogging path along 51st Avenue from Gila Crossing to Komatke Lane

Appendix A

Gila River Indian Community
Multimodal Pedestrian Safety Study
Mobile Open House

The Gila River Indian Community, in collaboration with the Arizona Department of Transportation (ADOT) Multimodal Planning Division (MPD) is developing the Multimodal Pedestrian Safety Plan funded through MPD's Planning Assistance for Rural Areas (PARA) program. The plan will provide multimodal transportation improvement recommendations to be implemented in the next five, 10 and 20 years.





Your input on pedestrian safety needs and recommendations for future transportation improvements to address these issues are critical for the Gila River Indian Community.

Stop by at any one of the mobile open house sites listed below on **Friday, March 28, 2014** to learn more about the study and to share your concerns and ideas for pedestrian safety improvements. Your input is valuable to this study effort.

Meeting Locations:

1. **Governance Center**
   525 W Gu U Ki
   Sacaton, AZ 85147
   8-9:30 a.m
2. **Gila River Health Care**
   483 W Seed Farm Rd
   Sacaton, AZ 85147
   10-11:30 a.m.
3. **Sacaton Super Mart**
   310 Ocotillo Dr
   Sacaton, AZ 85247
   12-1:30 p.m.
4. **Komatke Chevron**
   17197 S 51st Ave
   Laveen, AZ 85339
   2:30-3:30 p.m.
5. **Boys & Girls Club-Gila River Komatke**
   5047 W Pecos Rd
   Laveen, AZ 85339
   4-5:30 p.m.

If you require special assistance in order to participate in the public meeting, please contact projects@azdot.gov or 855.712.8530. Requests should be made as soon as possible to allow time to arrange the accommodation.

ADOT

FOR MORE INFORMATION:
Projects@azdot.gov
855.712.8530

Appendix B

Pedestrian and Bicycle Safety Needs Survey – District 1

The Gila River Indian Community Department of Land Use, Planning and Zoning is conducting a Multimodal Pedestrian Safety Study through the ADOT Multimodal Planning Division Planning Assistance for Rural Areas (PARA) program. We would like your opinions on what improvements are needed to improve walking and bicycling safety on the Gila River Indian Reservation.

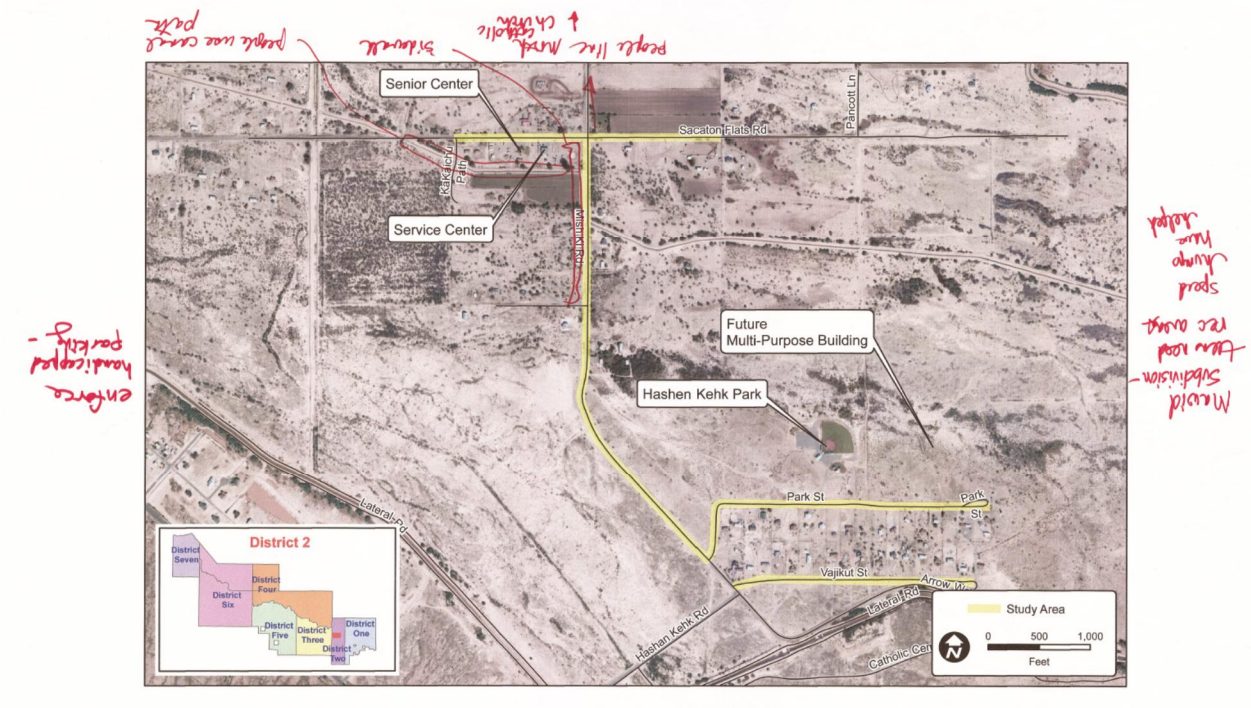
Thanks for your participation!

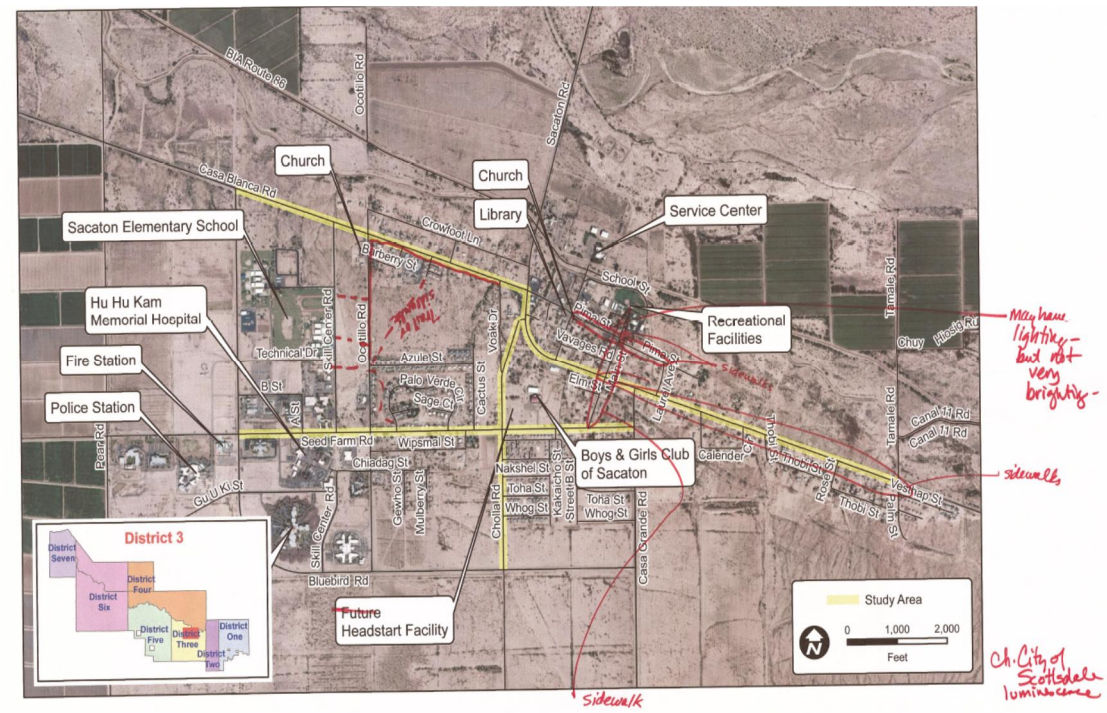
The map on the reverse side shows the streets in District 1 that are the focus of this project.

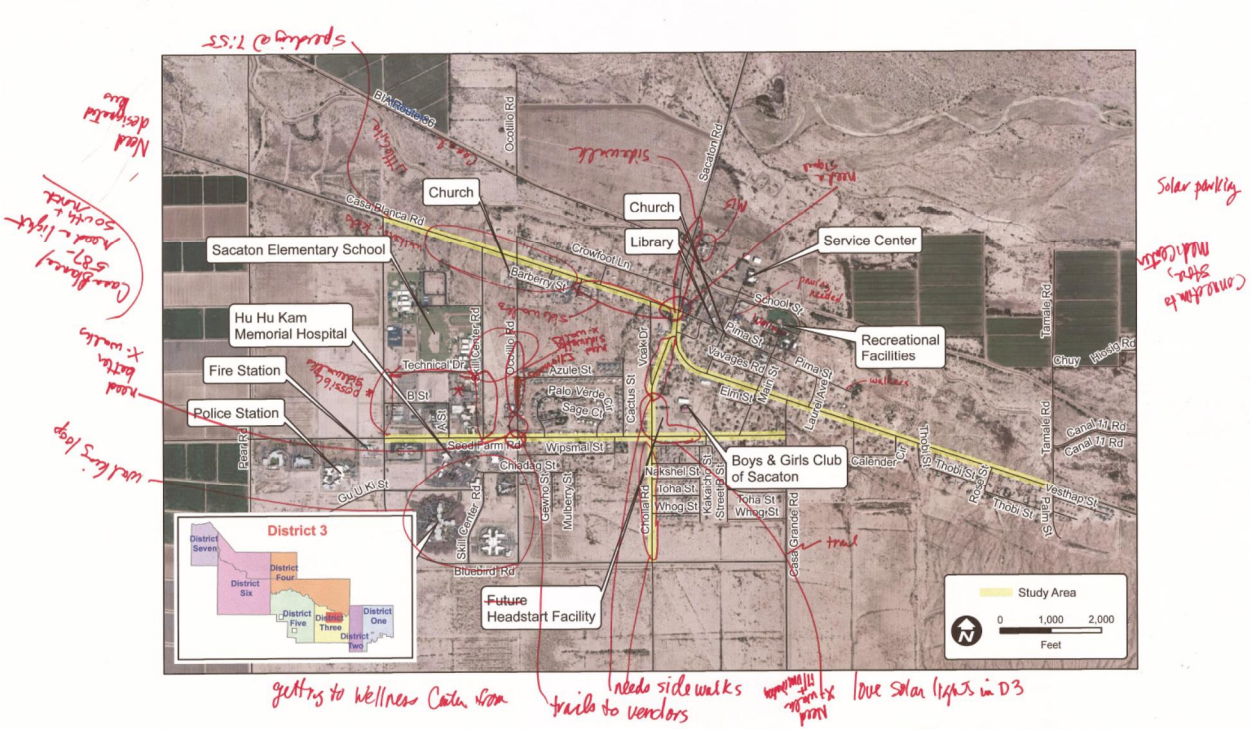
1) What are the current walking and bicycling needs in District 1?

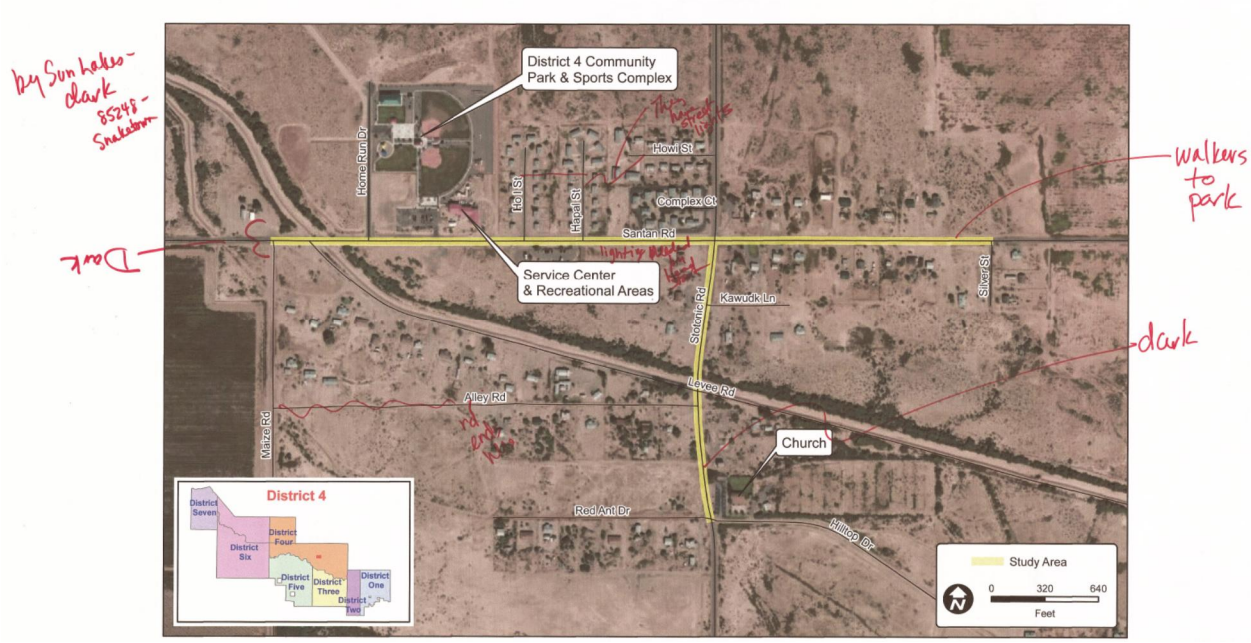
Potential improvement	Where would you like to see this improvement and why? (Please feel free to mark on map on reverse side)
☐ Sidewalks	
☐ Trails and pathways	
☐ Marked shoulders for bike lanes	
☐ Improved street crossings	
☐ Drainage improvements to improve walking conditions	
☐ Lighting	
☐ Street trees / more vegetation	
☐ Benches	
☐ Bus pullouts	
☐ Other	

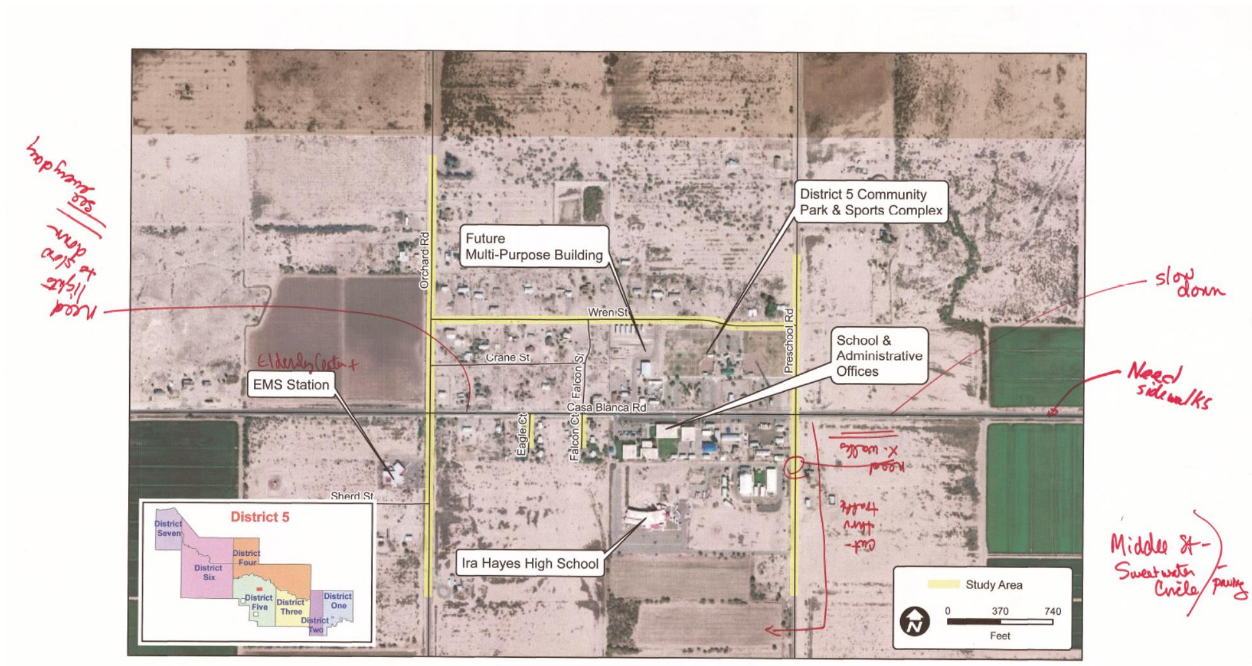
Appendix C

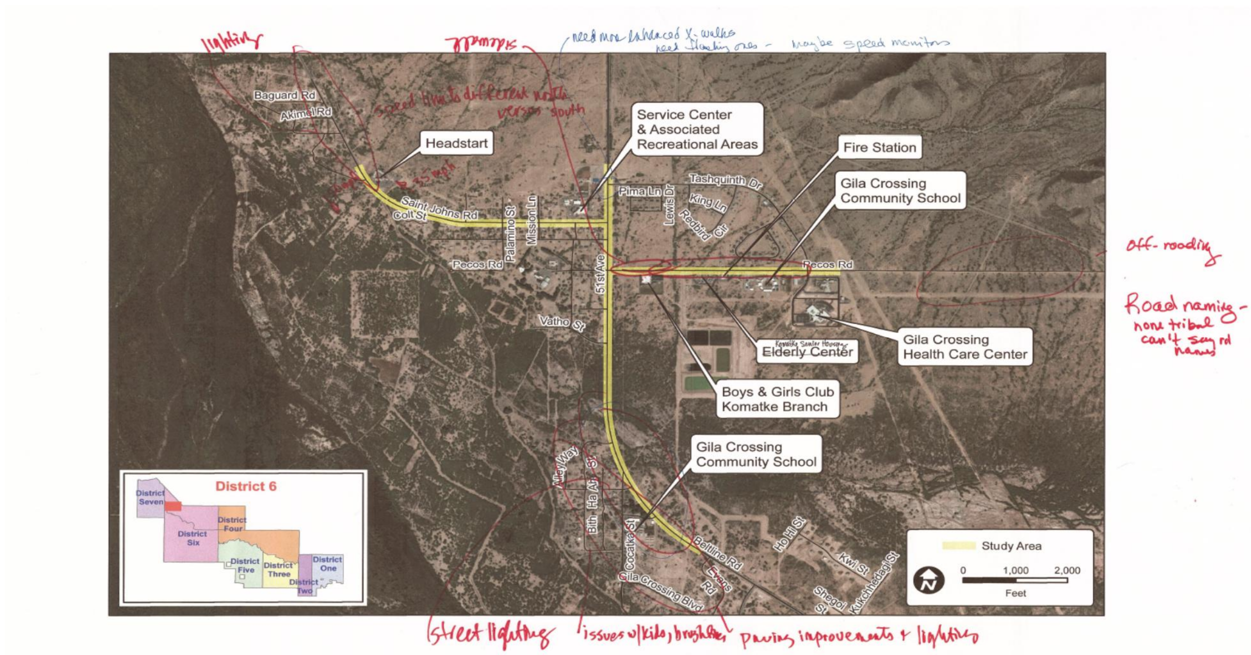

Senior Center
Service Center
Future
Multi-Purpose Building
Hashen Kehk Park
Sacaton Flats Rd
Park St
Vajikut St
Arrow Ln
Lateral Rd
Hashan Kehk Rd
District 2
Study Area
0 500 1,000
Feet

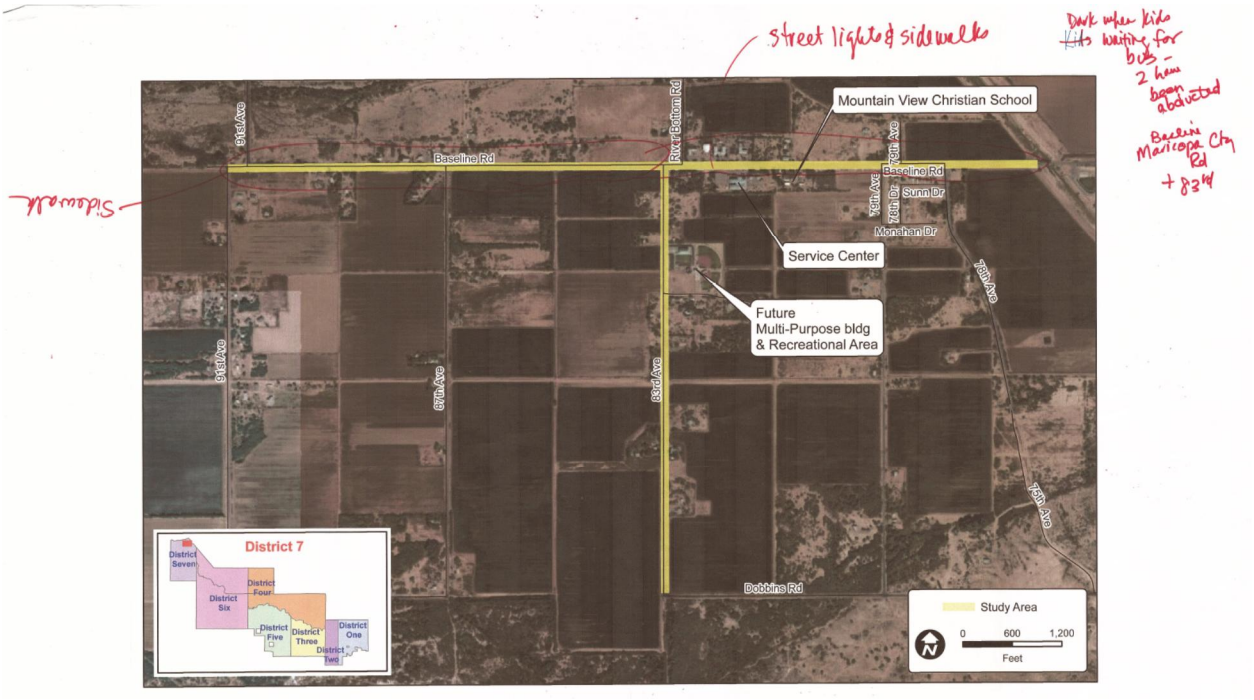

Church
Church
Library
Service Center
Sacaton Elementary School
Hu Hu Kam
Memorial Hospital
Fire Station
Police Station
Recreational
Facilities
Boys & Girls Club
of Sacaton
Future
Headstart Facility
Casa Blanca Rd
Crowfoot Ln
Seed Farm Rd
Wipsmal St
Bluebird Rd
Sacaton Rd
Tamale Rd
Canal 71 Rd
District 3
Study Area
0 1,000 2,000
Feet


Church
Church
Library
Service Center
Sacaton Elementary School
Hu Hu Kam Memorial Hospital
Fire Station
Police Station
Recreational Facilities
Boys & Girls Club of Sacaton
Future Headstart Facility
District 3
Study Area
0 1,000 2,000
Feet
getting to Wellness Center from
needs sidewalks
trails to vendors
love solar lights in D3


District 4 Community Park & Sports Complex
Service Center & Recreational Areas
Church
District 4
Study Area
0 320 640
Feet
walkers to park
dark


District 5 Community Park & Sports Complex
Future Multi-Purpose Building
School & Administrative Offices
EMS Station
Ira Hayes High School
Orchard Rd
Preschool Rd
Wren St
Crane St
Casa Blanca Rd
Falcon St
Falcon Ct
Eagle Ct
Sherd St
District 5
District Seven
District Six
District Four
District Five
District Three
District Two
District One
Study Area
0 370 740
Feet
Elderly Center
slow down
Need sidewalks
Middle St - Sweetwater Circle paving


Headstart
Service Center & Associated Recreational Areas
Fire Station
Gila Crossing Community School
Elderly Center
Gila Crossing Health Care Center
Boys & Girls Club Komatke Branch
Gila Crossing Community School
Baguard Rd
Akimel Rd
Saint Johns Rd
Colt St
Palomino St
Mission Ln
Pima Ln
Lewis Dr
Tashquinth Dr
King Ln
Redbird Cir
Pecos Rd
51st Ave
Vatho St
Beltline Rd
Gila Crossing Blvd
Ho Hi St
Kwi St
District 6
District Seven
District Six
District Four
District Five
District Three
District Two
District One
Study Area
0 1,000 2,000
Feet
lighting
maybe speed monitors
off-roading
Road naming - none tribal can't say rd names
Street lighting
paving improvements + lighting


Mountain View Christian School
Service Center
Future
Multi-Purpose bldg
& Recreational Area
Baseline Rd
Rittenhouse Rd
Dobbins Rd
Sunn Dr
Manahan Dr
91st Ave
83rd Ave
79th Ave
75th Ave
District 7
District Seven
District Six
District Four
District Five
District Three
District Two
District One
Study Area
0
600
1,200
Feet

Gila River Indian Community (GRIC) Multimodal Pedestrian Safety Study

September 2014

Prepared by
Arizona Department of Transportation

Introduction

The purpose of this project is to evaluate pedestrian safety needs on the Gila River Indian Community (GRIC) and to identify a recommended program of multimodal corridor enhancements to address the identified needs. Planning-level cost estimates for each proposed enhancement will be developed as well as identifying potential funding sources. A final report will be developed to guide future growth and development of improved pedestrian facilities for short-, mid-, and long-term planning horizons.

Open House

To inform and involve community members of the study, Gila River Indian Community Land Use Planning and Zoning (LUPZ) and ADOT hosted an open house at two locations in the community, one on the east and one on the west end on Tuesday, August 5, 2014. Locations included the Governance Center (from 4-5 p.m.) and the Boys & Girls Club-Gila River Komatke (from 6-8 p.m.). Staff present at the meeting included Mary Rodin (Kimley-Horn), Misty Klann and Coralie Cole (ADOT) and Barney Bigman (Gila River Indian Community LUPZ). The open house allowed for community members to learn more and provide feedback on the recommended pedestrian safety and transportation improvements that are a result of input from the first round of public involvement. In total, 6 members of the community signed-in at the two locations but a larger number were present and chose not to sign in.

Newspaper Advertisement

A newspaper advertisement providing the date and locations of the open houses was published in the following newspaper:

- Gila River Indian News (Weeks of July 18 and August 1, 2014)

A copy of the advertisement can be found in Appendix A.

Meeting Materials

Study boards showing the types of recommended improvements and locations were available for review at both locations. In addition, fact sheets and comment forms were also available for participants to provide feedback on the recommendations. All meeting materials can be accessed on the study webpage at azdot.gov/gricmpss.

The following comments were received as part of the open comment period following the open houses. A copy of the comment forms can be found in Appendix B:

District Four

- Maize Road to Silver Road off Santan Road
    - Especially lights
    - Lights at bus stops for winter time when in all black clothing
    - Goodyear area also needs street lighting
    - Speed bumps in front of Head Start

- Stotonic Road, Hilltop Drive to Howi Street
    - Most important by Head Start
    - Speed bumps

District Five

- Well drain runoff

District Six

- Pecos Road, 51st Avenue to Tashquinth Drive
    - Street lighting-kids walk on the road or side of the road, sometimes can't see them
    - More bus stops
    - Would like to see the graffiti cleaned on a daily basis
- 51st Avenue, Gila Crossing Rd to Tashquinth Dr
    - Bus should go all the way to Lone Butte housing to the area of the casino
- Other
    - It will help a lot for a sidewalk –good for people who use wheelchairs

District Seven

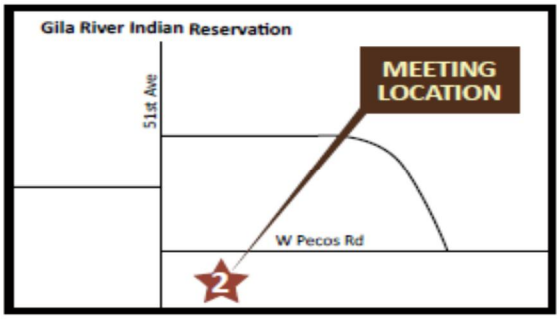
- Baseline Road, 79th to 91st avenues
    - Need streetlight at the end of Baseline and 91st Avenue
    - 91st Ave and Baseline need a stop light; sidewalk would be nice, bike path?
    - Need sidewalks and lights on 87th Avenue
    - Safer walk
    - Street lights at 91st and Baseline and along 91st Avenue to Dobbins
    - Need a stop light at 91st and Baseline
    - I think a streetlight should be put up also at the stop sign at 87th and 91st avenues
    - Foot traffic has greatly increased this is badly needed here
    - Lots of speeders on Baseline and on 79th Ave too
    - Sidewalks and streetlights where needed
    - Need street lighting on Baseline Road, Boundry to 91st Ave
    - Need senior discounts and kid school fares
- 83rd Avenue, Baseline Rd to Dobbins Rd
    - Sidewalks on 91st
    - Sidewalks would be nice, what about bike paths?
    - Safer walk
    - Need lights along Baseline Road
    - Badly needed as well, this community is growing
    - Also necessary street lighting
    - Street lighting on all avenues
    - Need bus routes here because some of the kids go to school in town

- 79th Avenue, Baseline Rd to Dobbins Rd
    - That's nice, bike path also!
    - Safer walk
    - Badly needed
    - Sidewalk on one side, street lighting
    - We also need streetlights 79th to Dobbins

Appendix A

Gila River Indian Community
Multimodal Pedestrian Safety Study
Open House

The Gila River Indian Community, in collaboration with the Arizona Department of Transportation (ADOT) Multimodal Planning Division (MPD) is developing the Multimodal Pedestrian Safety Plan funded through MPD's Planning Assistance for Rural Areas (PARA) program. The plan will provide multimodal pedestrian-related improvement recommendations to be considered in the short, mid and long-term timeframes.



Your input and review on recommended pedestrian safety and transportation improvements to address these issues that you identified from the mobile and stakeholder outreach events is critical for the safety and mobility of pedestrians on the Gila River Indian Community.

Stop by at one of the two open house sites listed below on **Tuesday, August 5, 2014**, to learn more about the recommendations and to provide your feedback on the proposed improvements. Your input is valuable to finalizing the study.

1. **Governance Center**
   525 W. Gu U Ki
   Sacaton, AZ
   4 - 5 p.m.

2. **Boys & Girls Club—**
   Gila River Komatke
   5047 W. Pecos Rd., Laveen, AZ
   6 - 8 p.m.

If you require special assistance in order to participate in the public meeting, please contact projects@azdot.gov or 855.712.8530. Requests should be made as soon as possible to allow time to arrange the accommodation.

ADOT

FOR MORE INFORMATION:
Projects@azdot.gov or azdot.gov/GRICmpss
855.712.8530

14-318

Appendix B

Multimodal Pedestrian Safety
STUDY FOR THE Gila River Indian Community

Comment Form – District 6 Pedestrian Safety Improvements

Here's what we heard on needs	Recommendations	Agree?		Comments
Pecos Road, 51st Avenue to Tashquinth Drive ➢ Sidewalks ➢ Street lighting ➢ Bus shelters	➢ Sidewalks on one side of street. ➢ Shoulders ➢ Street lighting ➢ High visibility crosswalks at Boys and Girls Club. ➢ Bus pads and shelters for planned Tribal transit system.	☒ Yes	☐ No	
51st Ave, Gila Crossing Rd to Tashquinth Dr ➢ Sidewalks ➢ Speed control	➢ Sidewalks on one side of street. ➢ Street lighting ➢ Bus pads and shelters for planned Tribal transit system. ➢ Speed monitors and gateway signing to reduce speeds.	☒ Yes	☐ No	
St Johns Road, 51st Ave to Squawberry Circle ➢ Sidewalks ➢ Street lighting	➢ Sidewalk on one side of street ➢ Street lighting, 51st Avenue to Head Start School ➢ Provide crosswalk at stop sign.	☒ Yes	☐ No	
Other ➢ Path from Vathos Street to St Johns Rd ➢ Path from Pecos Rd to Tashquinth Dr on Lewis Rd alignment ➢ Complete sidewalks on Tashquinth Dr	➢ Path from Vathos St to St Johns Rd. ➢ Path from Pecos Rd to Tashquinth Dr on Lewis Rd alignment. ➢ Construct sidewalk and stripe shoulder on Tashquinth Dr.	☒ Yes	☐ No	

(see reverse side)

Multimodal Pedestrian Safety

STUDY FOR THE Gila River Indian Community

Comment Form – District 6 Pedestrian Safety Improvements

Here's what we heard on needs	Recommendations	Agree?		Comments
Pecos Road, 51st Avenue to Tashquinth Drive ➢ Sidewalks ➢ Street lighting ➢ Bus shelters	➢ Sidewalks on one side of street. ➢ Shoulders ➢ Street lighting ➢ High visibility crosswalks at Boys and Girls Club. ➢ Bus pads and shelters for planned Tribal transit system.	☒ Yes	☐ No	
51st Ave, Gila Crossing Rd to Tashquinth Dr ➢ Sidewalks ➢ Speed control	➢ Sidewalks on one side of street. ➢ Street lighting ➢ Bus pads and shelters for planned Tribal transit system. ➢ Speed monitors and gateway signing to reduce speeds.	☑ Yes	☐ No	
St Johns Road, 51st Ave to Squawberry Circle ➢ Sidewalks ➢ Street lighting	➢ Sidewalk on one side of street ➢ Street lighting, 51st Avenue to Head Start School ➢ Provide crosswalk at stop sign.	☒ Yes	☐ No	
Other ➢ Path from Vathos Street to St Johns Rd ➢ Path from Pecos Rd to Tashquinth Dr on Lewis Rd alignment ➢ Complete sidewalks on Tashquinth Dr	➢ Path from Vathos St to St Johns Rd. ➢ Path from Pecos Rd to Tashquinth Dr on Lewis Rd alignment. ➢ Construct sidewalk and stripe shoulder on Tashquinth Dr.	☑ Yes	☐ No	

(see reverse side)

Appendix B - Drainage Recommendations

Discussion of the Development of Drainage Recommendations

A summary of the approach in developing drainage improvements to be incorporated with pedestrian safety improvements is:

- Kimley-Horn engineering staff reviewed existing drainage infrastructure on study area roads in each District that was potentially impacted by pedestrian improvements.
- Where existing drainage was impacted, the improvements were identified. These included recommendations regarding existing drainage structures (summarized in **Table B-1**), new culvert recommendations (**Table B-3**), and new ditch recommendations (**Table B-2**).
- New culvert recommendations were based on approximating the size of the culvert to reflect the width of the drainage channel approaching them.

Figures B-1 through B-7 show the drainage recommendations graphically.

Table B-1: Existing Culvert Improvement Recommendations

District	Feature Identification Number (FID#)	Road	Recommended Upgrade	Assumed Upgrade
1	14	Blackwater School Road	Pipe upgraded with additional sections and extended beyond new shoulder	(5) 24" CMPs*
1	15	Blackwater School Road	Pipe upgraded with additional sections and extended beyond new shoulder	(3) 24" CMPs*
1	1	Squawbrush Road	Pipe replaced/relocated to south to accommodate ditch	Replace in kind
1	2	Squawbrush Road	Pipe replaced/relocated to south to accommodate ditch	Replace in kind
1	3	Squawbrush Road	Pipe replaced/relocated to south to accommodate ditch	Replace in kind
1	4	Squawbrush Road	Pipe replaced/relocated to south to accommodate ditch	Replace in kind
1	5	Squawbrush Road	Pipe replaced/relocated to south to accommodate ditch	Replace in kind
1	6	Quail Road	Pipe extended beyond new shoulder	N/A
2	26	Vajikut Street	Pipe extended beyond new shoulder	N/A
2	27	Mish Ki Road	Pipe replaced/relocated to northeast to accommodate ditch	Replace in kind
2	29	Park Street	Pipe extended beyond new shoulder	N/A
2	28	Park Street	Pipe extended beyond new shoulder	N/A
2	30	Mish Ki Road	Pipe replaced/relocated to northeast to accommodate ditch	Replace in kind
2	31	Mish Ki Road	Pipe extended beyond new shoulder	N/A
3	770-73	Sacaton Road	Pipes extended beyond new shoulder	N/A
3	54	Sacaton Road	Pipe extended beyond new shoulder	N/A
3	32	Sacaton Road	Pipe extended beyond new shoulder	N/A
3	39	Sacaton Road	Pipe upgraded with additional sections and extended beyond new shoulder	(2) 24" CMPs
3	40	Sacaton Road	Pipe upgraded with additional sections and extended beyond new shoulder	(2) 24" CMPs
3	83	Sacaton Road	Pipe upgraded with additional sections and extended beyond new shoulder	(2) 24" CMPs

Table B-1: Existing Culvert Improvement Recommendations

District	Feature Identification Number (FID#)	Road	Recommended Upgrade	Assumed Upgrade
3	136	Casa Blanca Road	Pipe upgraded with additional sections and extended beyond new shoulder	(3) 36" CMPs*
3	128	Casa Blanca Road	Pipe extended beyond new shoulder	N/A
3	127	Casa Blanca Road	Pipe upgraded and extended beyond new shoulder	(3) 4'x3' concrete box culverts*
3	112	Cholla Road	Pipe extended beyond new shoulder	N/A
4	191	Stotonic Road	Box Culvert extended beyond new shoulder	N/A
4	150	Stotonic Road	Pipe replaced/relocated to west to accommodate ditch	Replace in kind
4	161	Indian Rte 68	Pipe replaced/relocated to north to accommodate ditch	Replace in kind
4	160	Indian Rte 68	Pipe extended beyond new shoulder	N/A
4	190	Indian Rte 68	Canal siphon pipe extension beyond new shoulder	N/A
6	189	St Johns Road	Pipe extended beyond new shoulder	N/A
6	175	Pecos Road	Pipe replaced/relocated to south to accommodate ditch	Replace in kind
6	176	Pecos Road	Pipe replaced/relocated to south to accommodate ditch	Replace in kind
6	177	Pecos Road	Pipe replaced/relocated to south to accommodate ditch	Replace in kind
6	185	Tashquinth Road	Pipe extended beyond new shoulder	N/A
6	186	Tashquinth Road	Pipe extended beyond new shoulder	N/A
6	187	Tashquinth Road	Pipe extended beyond new shoulder	N/A

*Note: three or more pipes may be considered a BIA bridge.

Table B-2: New Ditch Recommendations

District	Feature Identification Number (FID#)	Road	Ditch Impacted (Y/N)	Recommended Upgrade	Length (ft.)
1	0	Blackwater School Road	Y	New Ditch to direct flow to Culvert 15	301
1	1	Blackwater School Road	Y	New Ditch to direct flow to Culvert 14	906
1	2	Squawbrush Road	Y	New Ditch to accommodate widened shoulder	1204
2	3	Mish Ki Road	Y	New Ditch to direct flow to New Culvert 1	372
3	4	Skill Center Road	Y	New Ditch to accommodate widened shoulder	3638
4	5	Stotonic Road	Y	New Ditch to accommodate widened shoulder	743
4	6	Stotonic Road	Y	New Ditch to accommodate widened shoulder	760
7	8	Baseline Road	Y	New Ditch to accommodate widened shoulder	8625

Table B-3: New Culvert Recommendations

District	Feature Identification Number (FID#)	Road	Recommended Upgrade	Assumed Size
2	0	Mish Ki Road	New Pipe to provide positive drainage	(1) 24" CMP
2	1	Sacaton Flats Road	New Pipe to provide positive drainage	(1) 24" CMP
3	2	Casa Blanca Road	New Pipe to provide positive drainage	(3) 24" CMP*
3	3	Azule St (extension)	New Pipe to cross ADA path at Azule Street alignment	(2) 24" CMP
4	4	Indian Route 68	New Pipe to provide positive drainage	(1) 24" CMP
4	5	Section 4 Path	New Pipe to provide positive drainage	(1) 24" CMP
5	6	Casa Blanca Road	New Pipe to provide positive drainage	(2) 24" CMP
5	7	Orchard Road	New Pipe to provide positive drainage	(1) 24" CMP
6	8	St Johns Road	New Pipe to provide positive drainage	(3) 24" CMP*
6	9	Pecos Road	New concrete box culverts to match upstream existing box culverts below Tashquinth Drive	Requires further study.
6	10	51st Avenue/Beltline Road	New concrete culvert to accommodate Gila Floodway	Requires further study.

*Note: three or more pipes may be considered a BIA bridge.

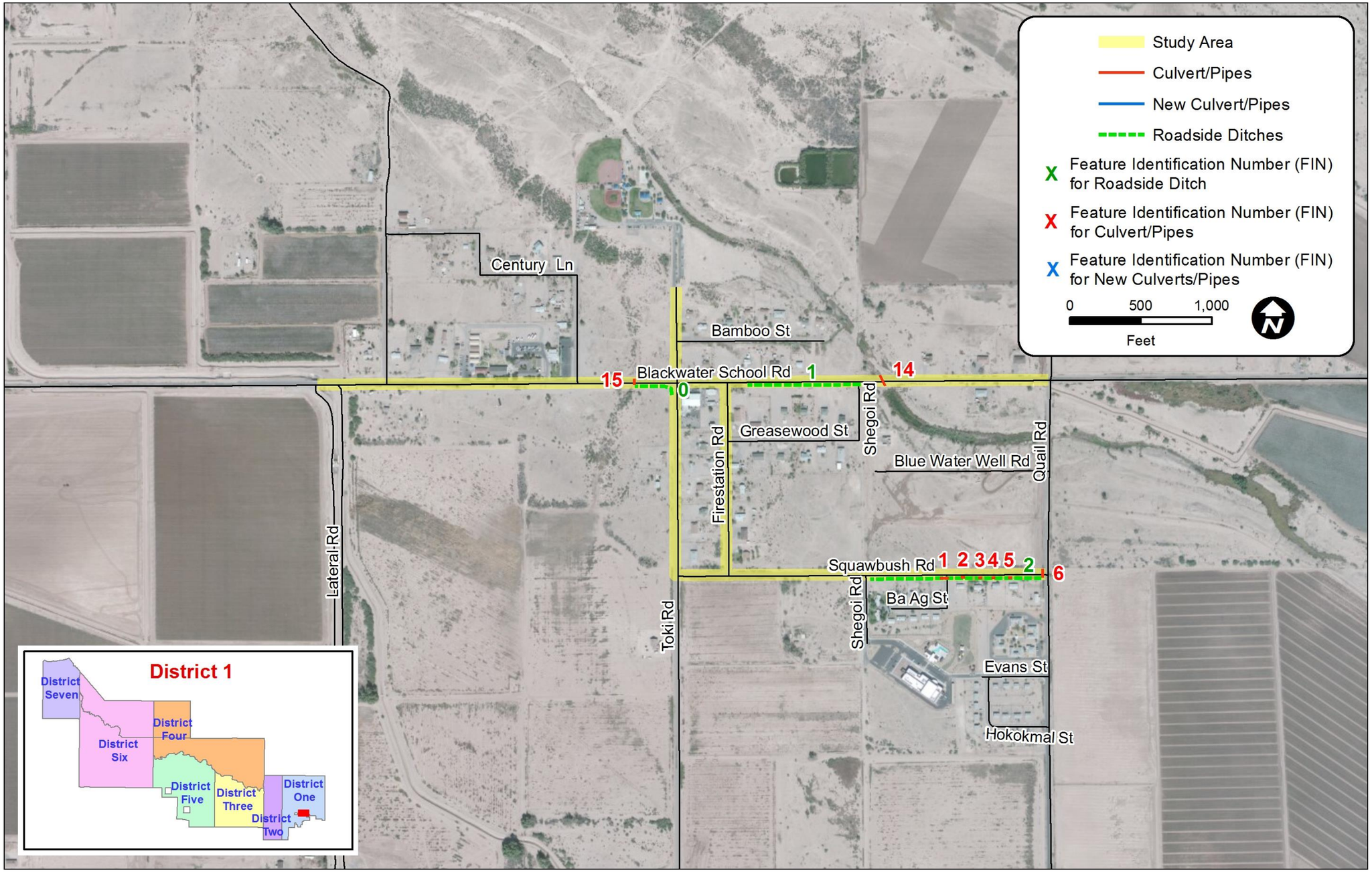


Figure B-1: District 1 Drainage Recommendations

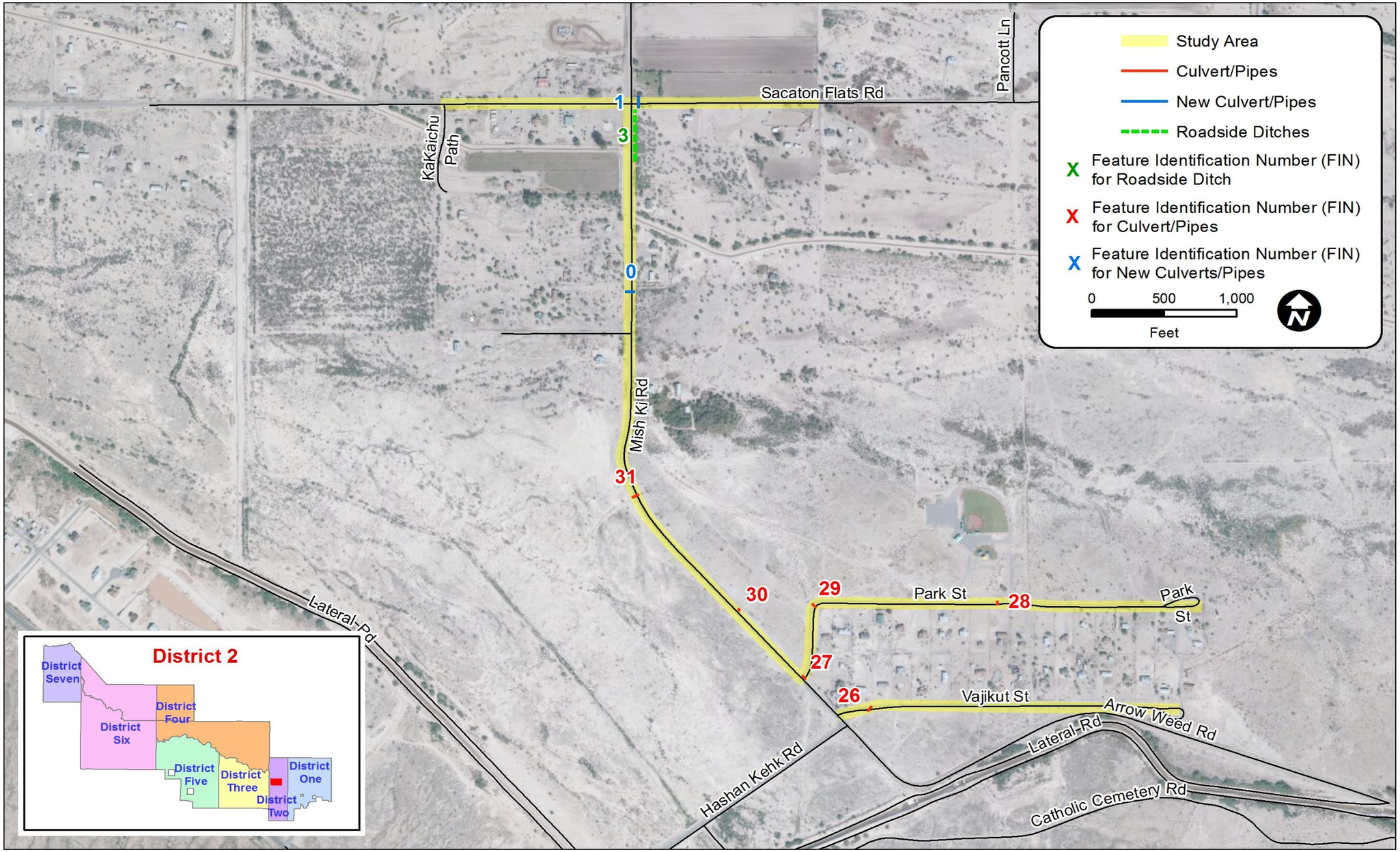


Figure B-2: District 2 Drainage Recommendations

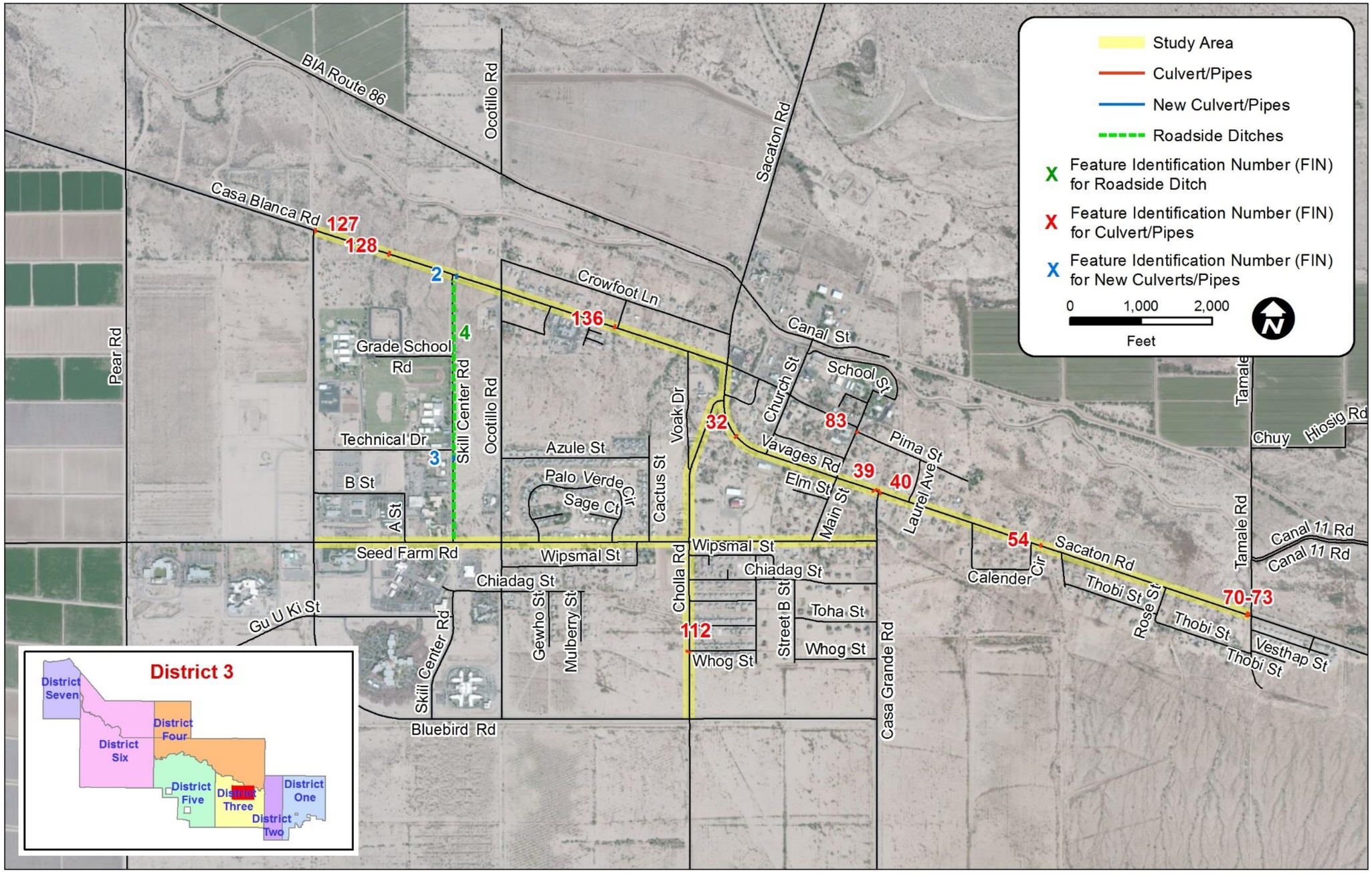


Figure B-3: District 3 Drainage Recommendations

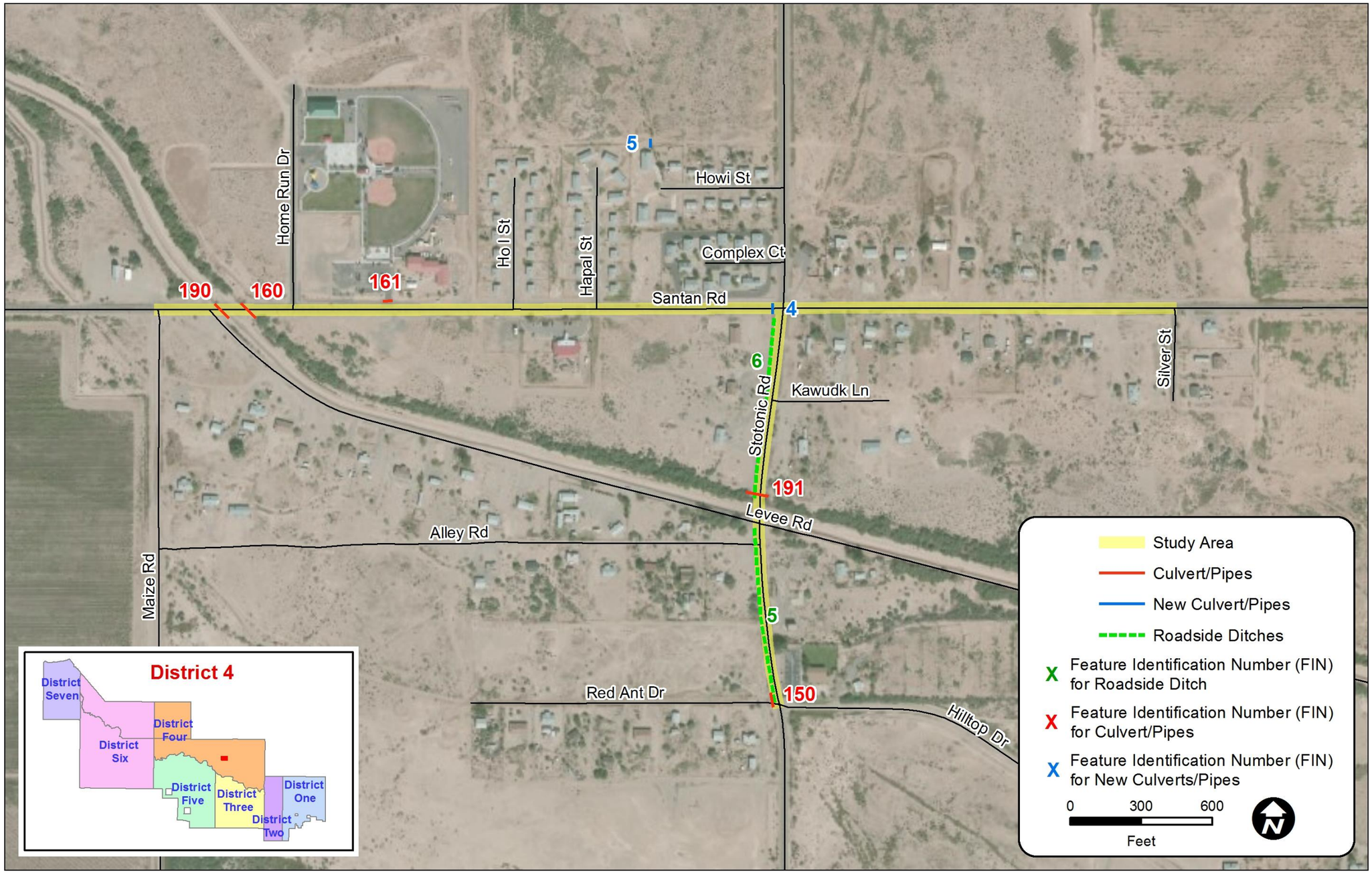
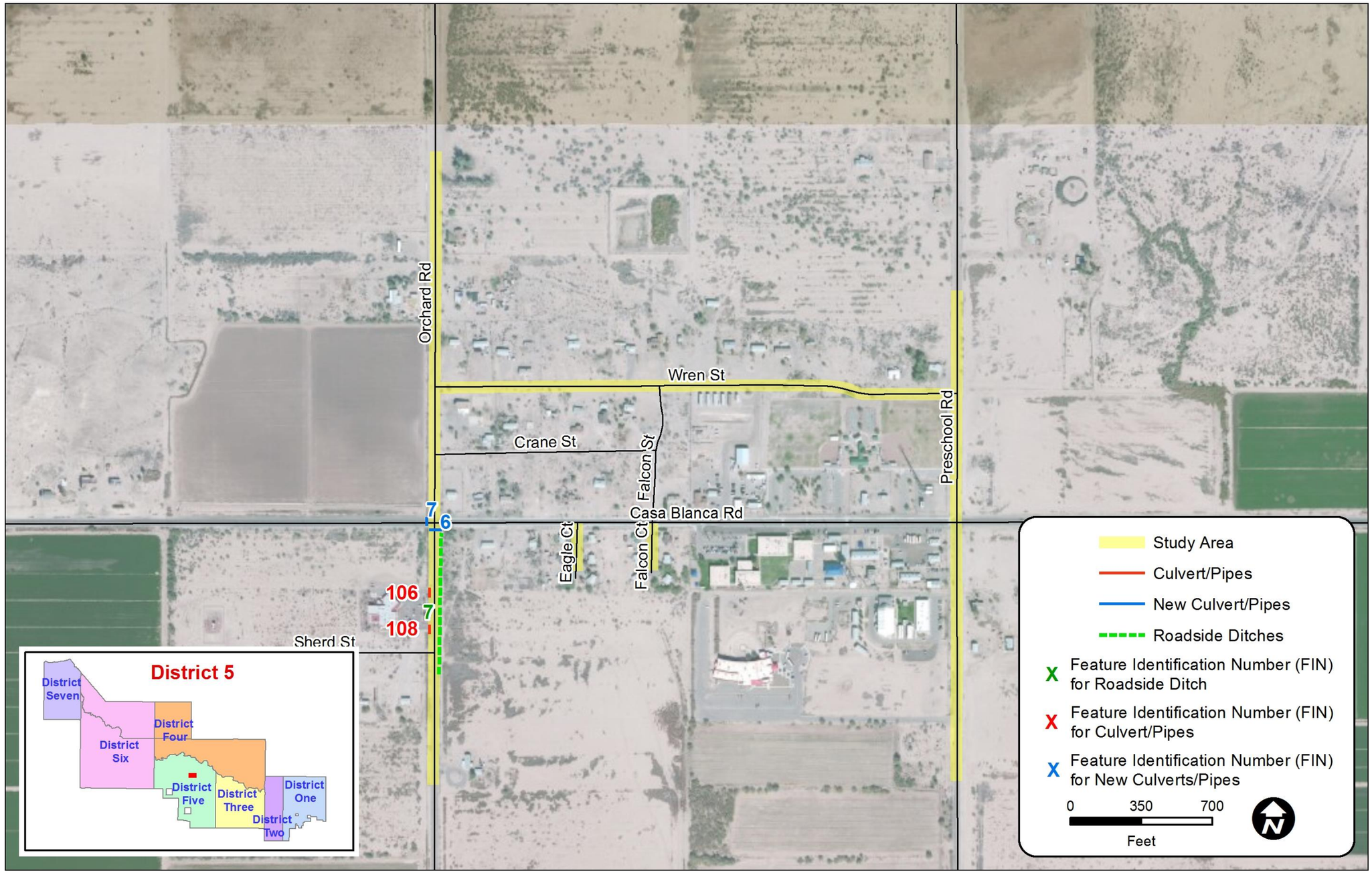


Figure B-4: District 4 Drainage Recommendations



District B-5: Drainage Recommendations

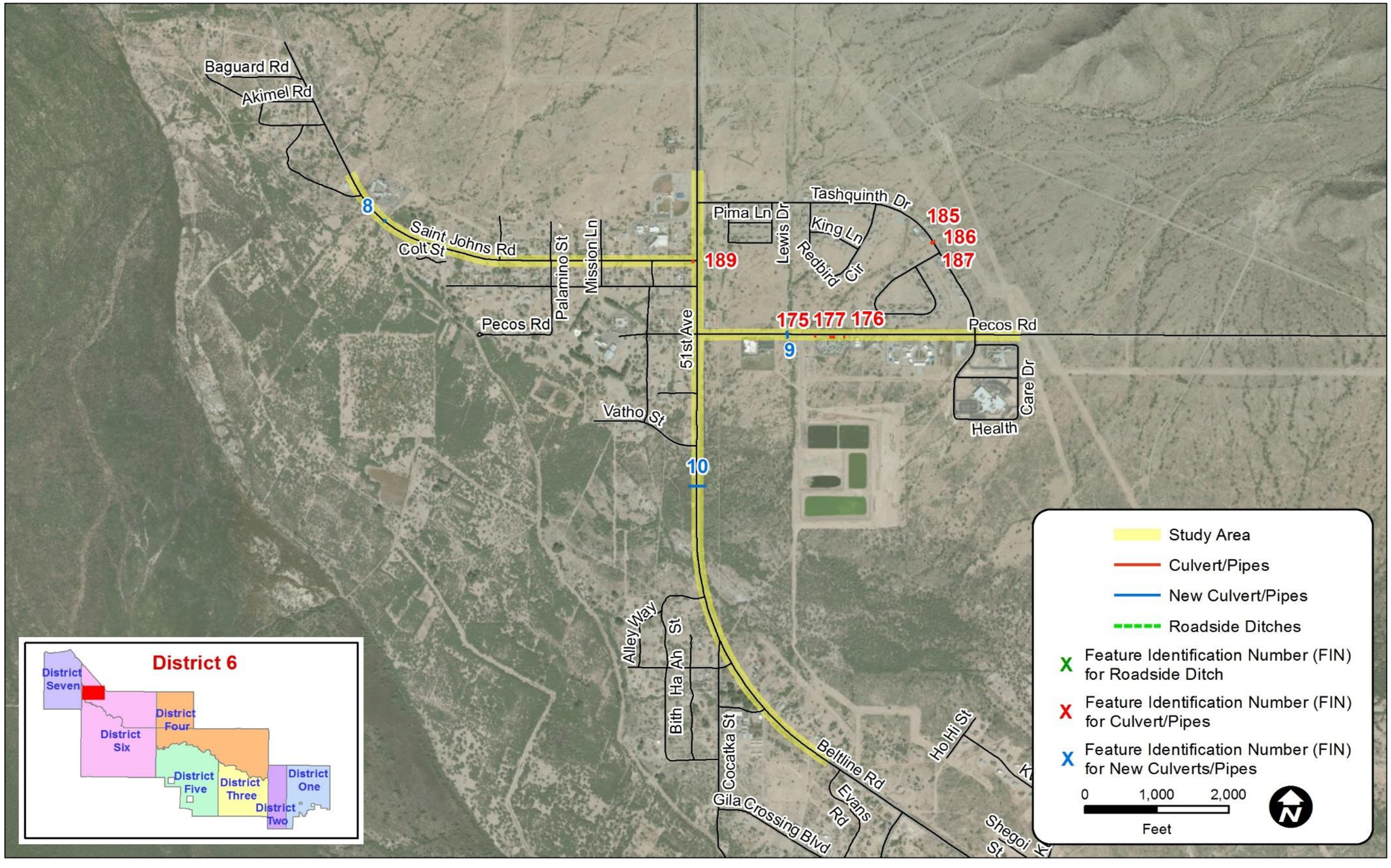


Figure B-6: District 6 Drainage Recommendations

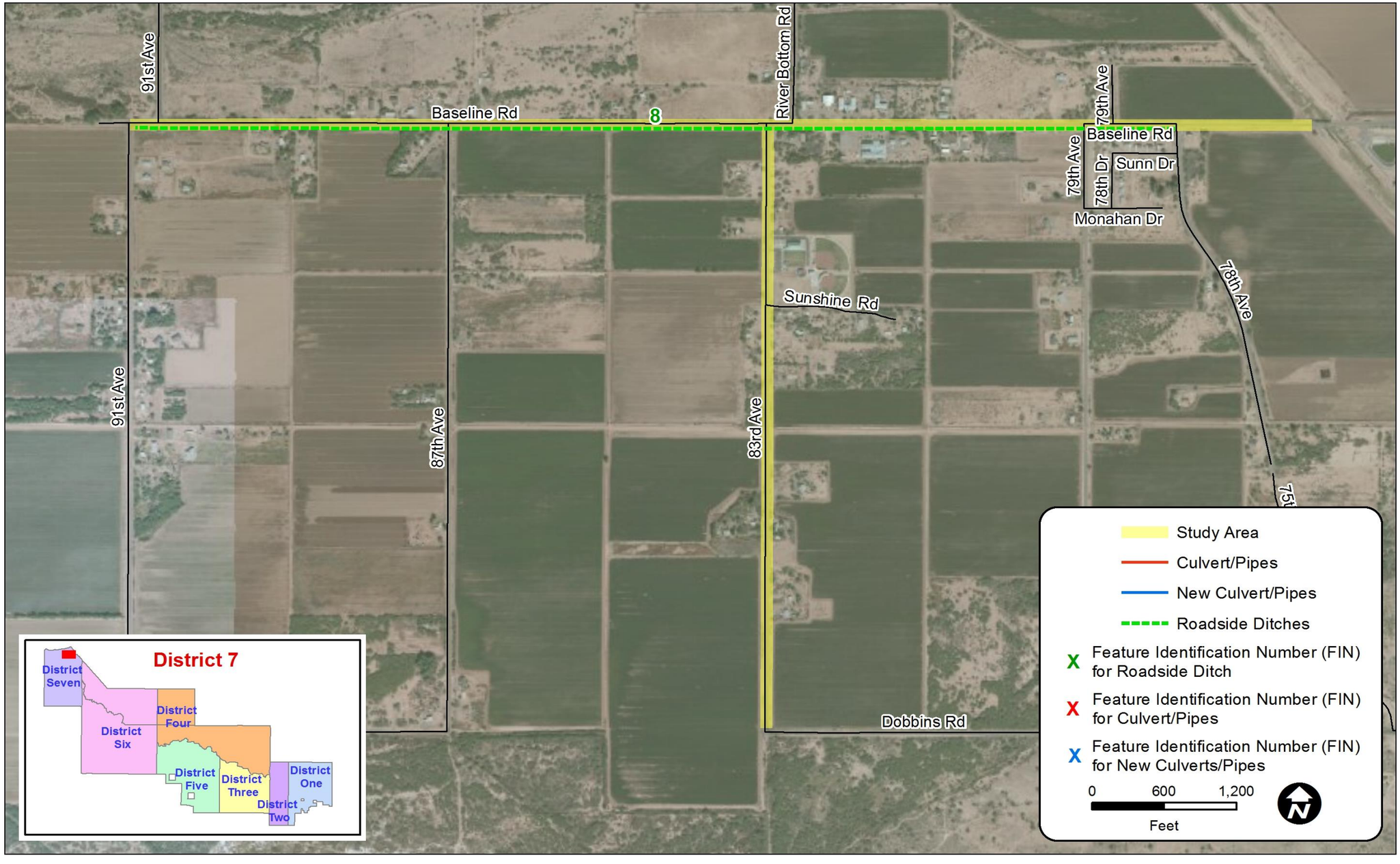


Figure B-7: District 7 Drainage Recommendations